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Address.

HISTORY OF THE CLINICAL RECOGNITION OF GASTRIC ULCER.*

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Succinct histories of the development of clinical conceptions on special diseases are very rare. This is partially explicable by the scarcity of historical data concerning early clinical thinking and by the confusion that has been brought into the accounts of the classical writers of medicine by the facts that the identical disease is designated with different names by different authors, and also that the exact diagnosis was rarely verified by operation or autopsy.

In the following sketch of the history of the clinical recognition of gastric ulcer, conclusions were based only on such cases as were substantiated in the manner just mentioned. In the writing of Hippocrates we find no statement which would justify us in concluding that the "Father of Medicine" was familiar with ulcer of the stomach as we conceive it to-day.

It is stated (Lebert) that Hippocrates treated Pericles for intense abdominal pain (gastralgia) by hellebore and flaxseed poultices.[1] I shall return to the Hippocratic literature on this subject in the latter part of this article.

A careful review of a German translation of Galen reveals no knowledge of peptic ulcer, though undoubtedly both Hippocrates and Galen give accounts of vomiting of blood in the sequence of digestive disturbances and abdominal pain.

It is impossible to personally scrutinize the writings of the historical clinicians for any statement that might be interpreted as a distinct clinical recognition of gastric ulcer. According to Lebert,[2] from whom also Welch[3] has derived most of his information concerning the history of clinical recognition of peptic ulcer, it is not until the sixteenth century that a clinical record available for our purpose can be found. It occurs in the writings of Johann Bauhin, the elder brother of Caspar Bauhin (1550-1624), and may be found in "Boneti Sepulchretum." It refers to a physician's wife, 18 years old, who suddenly showed symptoms of a perforation into the peritoneum, and died four days afterwards. In her abdomen was discovered besides gas, fluids and food remnants, a perforation in the middle of the stomach near the fundus; there were black contents in the stomach and clotted blood had been evacuated by the bowels.

From the second half of the sixteenth century dates another observation by Marcellus Donatus, which refers to a man 59 years old, who, after continued vomiting and pains in the stomach, was found at the postmortem examination to have near the pylorus at the lower end of the stomach an ulcer—*tunicam interiorem exesam*—a very graphic descriptive expression.

Courtial describes an oval opening in the anterior part of the stomach, with callous edges in a young woman who had suffered from gastric symptoms since her youth.

Littré found in the case of a man who had suffered from various affections of the stomach, and finally from hemorrhages, a round ulcer near the pylorus.

One of the first ulcers leading to a fistula in the stomach which is recorded in the literature so far known, seems to be associated with a case of Duverney. Similar observations were described in the first half of the previous century by van Swieten, Klein, Wenker, Iodac, Atkinson, Petit, Eckmuller, Cireaud, Helm, and Kade. It is not, however, quite certain to what the trouble in the various cases might rightly have been attributed, whether to the presence of a simple ulcer, or to a circumscribed abscess of the stomach region or a combination of both. The probabilities are, however, that the observation of van Swieten and Wenker were genuine cases of peptic ulcer.

Records of cases of healed ulcer of the stomach we already possess for the sixteenth and seventeenth centuries, by Forestus and Schenk von Grafenberg (1531 to 1598). In this connection should be mentioned an observation from the close of the preceding century by Reil, in which the scar of a healed gastric ulcer had become adherent to the mesenteric glands. The radiant formation of such a scar at the lesser curvature of the stomach has been aptly described according to a specimen in Meckel's collection. Older observations concerning abnormal conditions of the form of the stomach, with median contraction, by Blase, Mangold, Heister, Sandifort, Sömmering, Morgagni, etc., allude in a measure to such ulcers. In a number of cases symptoms of chronic stomach trouble existed beforehand, and frequently mention is made of callous bands, which would point to scars of earlier existing ulcers. In the last century mention is often made of adhesions of the stomach to adjacent parts (Mead, Murray, Santessen, Westring, etc.) of rupture of the stomach (principally through an ulcer), of death from excessive hemorrhage, also mainly attributable to a chronic peptic ulcer.

A good brief description, with excellent illustrations, was given at the close of the eighteenth century (in 1793) by Matthew Baillie. To Matthew Baillie unquestionably belongs the credit of having first accurately described, in 1793, the anatomic peculiarities of simple

*Address before the American Gastroenterologic Association, Atlantic City, June, 1904.

1. I have seen this statement quoted also by Talmage in an address to medical graduates, but have not been able to trace the source nor authority for same.—J. C. H.
2. Krankheiten d. Magens, Tübingen, 1877, p. 180.
3. Pepper's System of American Medicine, vol. II.

gastric ulcer.[4] At a later date he published three good engravings of this disease.[5] Baillie's concise and admirable description of the morbid anatomy of gastric ulcer was accompanied by clinical data, and seems to have had little or no influence in directing increased attention to this disease.

By far the best description of this disease up to the date of its publication is by Voigtel, at the beginning of the eighteenth century. The following description is quoted from Lembert:[1] "Frequently ulcers are found in the membranes of the stomach. Oftener they progress from the interior to the exterior; they are merely superficial cancers or perforations. They have in common a peculiar appearance. Frequently they are surrounded by an inflammatory thickening and hardness, and then again it is not possible to detect near or around them any distinctive abnormal formation of the stomach. They appear as if "a piece of the stomach had been cut out with a knife," and the edges so healed as to make a smooth boundary all around the opening; at times the gastric tissue about the opening has condensed." The subsequent remarks point likewise to an admirable knowledge with the whole evolution of the disease on the part of Voigtel and his contemporaries, Meikel, Reil, etc. The words used by Voigtel in describing the appearance of this gastric lesion, namely: "As if a piece of the stomach had been cut out with a knife."—remind one of the expression of Rokitansky[6] used much later, and which is much oftener quoted, namely: "As if a piece of the stomach had been cut out with a punch."

Many observations, accompanied by diverse commentaries, are found in the early scientific literature concerning spontaneous perforations of the stomach, the greater part of which may rightly be classed here.

Toward the end of the eighteenth century we encounter Hunter's theory of the origin of gastric perforations, attributing them to the erosion by the gastric juice; although based on the authority of Spallanzani, this hypothesis lost ground very rapidly, notwithstanding the support given it by a number of important authorities. Carswell managed to bring it again into transitory favor. In the year 1800 Joseph Morin stated that perforation of the stomach was a result of a protracted local inflammation of the gastric membranes. He likewise speaks of stagnation in the blood vessels, with a change in the direction of the flow of the blood and autodigestion, as some of the causes. According to the very pretty historic compilation of Lefevre, Lerons and Chaussier, in the year 1808, presented to the Paris Medical Association reports of their observations of perforated gastric ulcers accompanied by adhesions of the spleen.

Very interesting history also is found in the defense of a person by Chaussier against the charge of poisoning, in 1818, when the latter proved that a perforation of the stomach had taken place after previous prolonged ulceration. Similar cases have come up frequently since that time. Cruveilhier relates that there was a movement on foot to attribute the death of one of his cases of chronic gastric ulcer to poisoning, when he proved that the true cause of the perforation in question had been a previously existing ulcer in the stomach. The dissertation of 1819 by Lainé offers for those times very sound opinions about this perforation, and describes the deleterious action of the digestive fluid as succeeding ulceration. He also emphasizes the importance of studying the antecedents of a case. The expression "perforation by erosion" from now on appears more frequently. Lainé also recommends, for forensic reasons, not only chemical inquiry, but also an examination of those parts of the anatomy through which the alleged poison is supposed to have passed into the stomach.

Rausch, in his classification of gastric ruptures, designates those incident to a real ulcer, often with callous edges, as one of the main groups. Similar results are reached by Ebermaier, who, in addition to his own, cites cases by Henkel, Mole, Baron, Gérard, Desgranges, Trinius, Besker, Spitta, and Thomissen. To all these cases he attributes a chronic, many times unknown course, frequently with easily discernible symptoms, especially cardiac symptoms. The frequency with which the rupture takes place near the pylorus is pointed out by him, but he seems to be unable to determine the cause of this phenomenon. Cancer and ordinary inflammation, however, are not regarded as having causal significance.

In 1824, Abercrombie published a brief, but for his time a very remarkable description of this disease. Some of his observations clearly refer to the ulcus simplex; indeed one of the cases reported to him by Wood refers to a perforated ulcer of the duodenum. His confusion of cases of gastric cancer and other malignant growths with those of simple ulcer, shows how undefined his views were.

We now have become acquainted with two phases of the history of chronic ulcer—the first being one of the isolated observations beginning with the tenth century, the second beginning with the close of the eighteenth and with the early part of the nineteenth century, and occupying itself with the establishing of a collection of those isolated observations as done by Voigtel, but emphasizing more of the pathologic anatomic point of view; on the clinical side, too, much attention is paid to the perforation itself.

Cruveilhier has the distinction of being the first to subject this disease both clinically as well as anatomically to a thorough and intelligent pathologic examination. The tenth issue of his great "Pathological Anatomy," from the beginning of the third decade of the nineteenth century, 1829-1835, gives evidence of an extensive personal experience on the subject.

Cruveilhier[6] in the first volume of his work on Pathologic Anatomy, published between the years 1829 and 1835, for the first time clearly distinguished ulcer of the stomach from cancer of the stomach and from ordinary gastritis. He gave an authoritative and full description of gastric ulcer from the anatomic, the clinical and the therapeutic points of view.

Among his observations are those concerning the Greek professor, Gall, from the end of the year 1828 and beginning of the next; one from December, 1829, about a charcoal burner, who died soon after the perforation of his stomach; one from the beginning of the year 1830, concerning the famous chemist, Darcet; one from the same year concerning a gastric ulcer which had cicatrized—and with respect to this case we learn from his twentieth issue that the person in question died in 1834 from a perforated stomach. Not only are the anatomic aspects—i. e., rapidly developing, chronic

4. The Morbid Anatomy of the Most Important Parts of the Human Body, London, 1893, p. 87.

5. A Series of Engravings, accompanied with explanations, etc., London, 1799.

6. Lehrbuch d. Pathol. Anatomie.

6. Anatomie pathologique du Corps humain, vol. I, Paris, 1829-35, No. 10 and No. 20; and vol. II, Paris, 1835-42, No. 30 and No. 31.

ulcer, closing up, scarring over, perforation, hemorrhage from the coronary artery of the stomach, from the splenic artery, malformation of the stomach, contraction of the pylorus through the agency of scarring—well described, but also a good foundation is laid for clinical and therapeutic work.

We thus emerge into the modern phase, in which a correct and broad interpretation of anatomic and clinical facts of the influence of hygiene, diet and therapeutics takes place, and thus order and understanding are introduced into this chaos of observations.

In Germany we are indebted to Rokitansky for a classical treatise on the peptic ulcer, based on a large clinical and pathological experience, well analyzed. This excellent work became rapidly known.

Next to Cruveilhier, Rokitansky has had the greatest influence on the modern conception of gastric ulcer. In 1839 this pathologist gave a description of the disease based on an analysis of 79 cases.[7] The anatomic part of his description has served as a model for all subsequent writers on this subject everywhere. A few years later von Jaksch extended the pathologic knowledge of the gastric ulcer (to be sure, more from his clinical experience than from a strict analysis of bedside records), by a series of thorough clinical investigations.

From 1830 to 1840 observations and compilations appear frequently in the medical literature of almost all countries. According to Lebert,[1] rich collections for causal interpretation are found in the *Bulletins de la Société anatomique de Paris,* also in *Archives générales de Médicine,* in the "Annual Reports" of the last 20 years of Canstatt,[8] the Proceedings of the London Pathological Society, etc. Among the older journal articles and dissertations that have appeared is the Thesis of Duval in the year 1852 (Paris), one of the earliest of the better French compilations. Lebert[1] also refers to the publications of one of his pupils, Bisseger, as containing his own views often expressed in the Zürich clinic, and also an analysis of its rich material, together with clinical histories.

After Virchow, in 1855, developed his views on the hemorrhage-necrotic origin of the simple peptic ulcer, a series of good dissertations appeared under his editorial supervision, among which especial mention should be made of those by Steiner, 1868, and Wollman, 1868. Among the English authors, Crisp, Ashborne, Chambers, Habershon, Handfield-Jones, etc., but especially Brinton, have done excellent work. From the latter emanated the largest compilation, with excellent anatomical and clinical data. Habershon has also made valuable clinical additions to our knowledge of this disease.

From the beginning of scientific inquiry cited in the preceding, to the year 1868, there is, as we have seen, a vast accumulation of clinical data, but out of all of this literature, according to Lebert, not 100 are of genuine objective merit.

Cruveilhier's work of 1856, made known in the *Archives Generales de Medicine,* contains for those times and for the present no new matter beyond what was presented in his previous publications, but impresses us with the great anatomic and clinical experience of this wonderful pathologist.

Trousseau, in his *Clinique Medicale,* gives a review of the essentials, which acts in a stimulating manner on medical thinkers, but is, of course, incomplete, which is to be expected of clinical lectures, however important they otherwise may be.

Bamberger's description is an excellent sketch of the subject. The work of Ziemssen (in his Encyclopedia, Ziemssen's *Handbuch d. spec. Path. u. Therap.*), on the treatment of chronic gastric ulcer, represents the best knowledge of the Münich clinic.

As early as 1845 Schiff shows that hemorrhagic localized infiltrations of the mucous membrane of the stomach result from an irritation of certain parts of the brain. After a number of other experiments, he published the results of his investigations in his "*Leçon sur la digestion.*" In 1852 Lebert became acquainted for the first time with the hemorrhagic type of the growth of chronic gastric ulcer. In 1855 Virchow made known his views on this matter, and brought into general favor the acceptance of a hemorrhagic necrotic origin of the peptic ulcer. Müller has the distinction of having proved, in 1859, that the ligation of the portal vein results in numerous hemorrhagic erosions of the stomach, particularly in the pyloric region. Pavy later on showed the same thing in the case of larger ulcers through ligation of branches of the gastric artery. For the best and most exhaustive experiments on the circumscribed hemorrhagic infiltrates in the mucous membrane of the stomach, we are indebted to Ebstein.

Since the ushering in by Cruveilhier and Rokitansky of the modern era in the history of the gastric ulcer, the era of exact objective investigation, medical literature abounds in articles on this disease. But it can not be said that the importance of these works is at all commensurate with their number or that they have added very materially to the classical descriptions given by Cruveilhier and by Rokitansky. Perhaps most worthy of mention of the works of this later era are the article by Jaksch relating to symptomatology and diagnosis, and of Virchow relating to etiology, the statistical analyses by Brinton, and the contribution to the treatment of the disease by Ziemssen and by Leube.[9] In 1860, Ludwig Müller[10] published an extensive monograph on gastric ulcer. The most modern literature on the subject is contained in the works of Riegel.[11] Prof. Wm. H. Welch[12] gives a short résumé of the history of the clinical recognition and pathology of gastric ulcer, taken largely from Lebert. In the new *Handbuch der Geschichte der Medicin,* by Neuberger and Pagel,[13] the history of gastric ulcer is rather neglectfully treated. It seems that the author, George Korn, had no knowledge of the interesting studies of Abercrombie, Voigtel, Littré, Matthew Baillie, Cruveilhier and the other clinical and pathologic workers mentioned in the preceding. The article is interesting for the histology and pathology of digestion, the history of the stomach tube, etc., but for the history of the development of clinical ideas on any single gastric disease, little help can be obtained from this

7. Oesterich Med. Jahrb., 1839, vol. xviii (abstract in Schmidt's Jahrb., vol. xxv, p. 40).

8. Canstatt's Jahresberichte.

9. Jaksch: Prager Vierteljahrschr., vol. iii, 1844; Virchow: Arch. f. path. Anat., vol. v, p. 362, 1853; and A. Beer: "Aus dem. path. anatom., Curse des Prof. R. Virchow in Berlin, Das einfache duodenische (corrosive) Magensgeschwür," Wiener med. Woch., Nos. 26, 27, 1857; Brinton: On the Pathology, Symptoms and Treatment of Ulcer of the Stomach, London, 1857; V. Ziemssen: Volkmann's Samml. klin. Vorträge, No. 15, 1871; Leube: Ziemssen's Handb. d. spec. Path. u. Therap., vol. vii, Leipzig, 1878.

10. Das corrosive Geschwür im Magen und Darmkanal, Erlangen, 1860.

11. Erkrankungen des Magens. In the fourth volume of Penzoldt u. Stintzing's Handbuch d. specielle Therapie, p. 316, also pp. 437 and 438 are contained 150 bibliographical and historical references on gastric ulcer.

12. American System of Medicine (edited by Pepper), vol. ii, p. 480.

13. Vol. ii, p. 666.

otherwise very interesting article. On page 693 of this article, Korn asserts that Hippocrates already described some of the symptoms of gastric ulcer as a special disease which was called *"sphacelous disease,"* or *"morbus niger,"* because black masses in the form of clumps were either vomited or passed by the bowels. I have looked up this passage in Hippocrates[14] and, while there is great temptation to credit the "Father of Medical Literature" with the first trustworthy knowledge of gastric ulcer, I regret to report that his account is not even approximately correct for this disease, but would cover that also of gastric carcinoma and even of secondary gastric hemorrhage, due to cirrhosis of the liver. Some have thought the dietetic treatment which Hippocrates recommended for his *morbus niger* gave evidence that he recognized it to be the disease we know as gastric or peptic ulcer. But even this hope is destroyed by a critical investigation of the diet of Hippocrates for this purpose. In 1899 Rudolph Bandel, on the incentive of Prof. R. Fleischer, of Erlangen, investigated the writings of Hippocrates for his knowledge on dietetics. It is published in a small pamphlet entitled *"Ansichten u. Ausprüche des Hippokrates über die Ernährung vom Gesunden und Kranden, etc."* (Inaugural dissertation, Erlangen.) In this publication we find nothing to confirm the supposition that the diet of Hippocrates gave evidence of his knowledge of gastric ulcer. The term which Hippocrates gives to the vomited masses in *morbus niger* is *atra bilis* (black bile), which expression maintained itself in medical literature until 1740, when F. R. Hoffmann demonstrated that the seat of *morbus niger* is the stomach. His words are as follows: "Simultaneously with the destruction of the substance of the stomach, the vessels are corroded or broken open, and these open vessels furnish the blood which is expelled by vomiting. We have to assume that the vessels are corroded by sour and acid juices, when a sharp gastric pain precedes the vomiting, and when the vomited bloody masses are black and acid at the same time, make the teeth stand on edge, and irritate the mouth and gullet."

Morgagni (1682-1771), a contemporary of the prominent Italian anatomists, a pupil of Valsalvas and Albertini, and a friend of Lancissi, in his book on "The Seat and the Causation of Diseases," does not agree with the view of F. R. Hoffmann just expressed, but holds that patients who die of *morbus niger* were suffering from a kind of gangrene of the stomach; that they did not die of loss of blood, but of a kind of poisoning of the blood, which infected the brain. It is interesting to note here that Morgagni described in this work the condition known as "continuous gastric secretion" (gastric succorrhea) occurring in a German nobleman in Bologna, who died later with symptoms of gastric tetany.

The designation *ulcus ventriculi* was first used by the versatile Jena clinician, Johann Peter Frank (1745 to 1821.) It is regrettable that the writings of this scholarly asclepiad are being gradually forgotten, for the modern treatment of gastric ulcer dates from him. The insistance on absolute rest in bed, the application of snow or crushed ice to the stomach, the great regard for dieting (milk and bouillon in small portions), all show exceptional clinical experience. The best that is known on gastric ulcer and gastric diseases in general up to 1850 is presented in the work of William Brinton. Since the descriptions of Cruveilhier, Rokitansky and Virchow, the pathologic conception and the clinical conception of the gastric ulcer have received no notable advance. The further students of this disease, Trousseau, Kussmaul, Ziemssen, Leube, C. A. Ewald, von Mering, Fleiner, Boas, Rosenheim, Riegel, Penzoldt, furnished clinical elaborations, purely.

It might be mentioned before concluding, that the first surgical intervention for gastric ulcer was undertaken in 1881 by Rydygier. For further history of gastric surgery, see Hemmeter.[15]

14. Sydenham Society edition.

15. Diseases of the Stomach, third edition, p. 348. For history and literature of gastric ulcer, see same work, pp. 486-526, containing 248 literary references on the subject.

Original Articles.

BLINDNESS AND OCULOMOTOR PALSIES FROM INJURIES NOT INVOLVING THE OPTIC OR OCULOMOTOR NERVES.*

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That the eye in its visual function and motility is disturbed by causes remote from it, has been known for centuries, and is also a matter of common observation to-day. Among these disturbing causes have been found certain injuries about the face and forehead, which have led to partial or complete loss of vision, usually of one eye, and paralysis, partial or complete, of some of the ocular nerves, these injuries not seeming to involve the particular nerves whose function was impaired or lost. In a large proportion of these cases the injuries have apparently been limited to the fifth nerve, or some of its branches. Hippocrates had noticed this, and it is recorded that he said "the sight is obscured in wounds which are inflicted on the eyebrow or a little higher."[1]

Blindness and ocular palsies following violent injuries of the face and head, and direct injuries of the optic and oculomotor nerves, have recently received careful study and consideration. Berlin[2] read a paper at the Heidelberg Congress, in 1879, in which he reported the statistics of Dr. von Hölder, comprising 124 cases of fracture of the cranium in which postmortems had been made, and in which the fracture, in 79, passed through the orbital vault; and of these 79, 63 involved the walls of the optic canal. He believes that such fractures and direct injuries to the nerves are essential factors in producing the blindness and paralysis often found after head injuries.

Among those who particularly adhere to the same theory are Nettleship,[3] who has studied a large number of gunshot injuries of and about the orbit; Callan,[4] who reported in 1893, 9 cases of orbital traumatism, and who, in a private letter to me a short time ago, said that up to the present time "it has been my fortune to see at least 25 cases of the same type"; Simeon Snell,[5] who has analyzed 18 cases of blindness following

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Hocken: A Treatise on Amaurosis, Philadelphia, 1842, p. 155.

2. Berlin: Graefe-Saemisch Handbuch der Gesamten Augenheilkunde, first edition, vol. vi, p. 604.

3. Nettleship: Transactions of the Ophthalmological Society of the United Kingdom, 1901, vol. xxi, p. 120.

4. Callan: New York Eye and Ear Infirmary Reports, vol. i, Part 1, January, 1893.

5. Snell: Transactions of the Ophthalmological Society of the United Kingdom, 1897, vol. xvii, p. 81.

injury "chiefly of the anterior part of the head"; Purtscher,[6] who has collected 46 cases of traumatic paralysis of the abducens nerve; and Friedenwald,[7] who continued Purtscher's series by the addition of 11 more belonging to the same class.

I quite agree with the conclusions of these gentlemen that, in most of the cases which they have cited, the blindness or paralysis was due to injury, either direct or indirect, of the affected nerves. It is this class of cases that I would eliminate entirely from this discussion. I wish to reserve only those in which there has been no violent face or head injury, and, so far as can be seen or determined, no direct nor indirect involvement of the disabled nerve itself.

The question naturally arises, Do any such cases exist? To this question both affirmative and negative answers have been given. The negative answers I shall not analyze. On the affirmative side there have been many keen observers, both before the time of the use of the ophthalmoscope and since. The cases cited to sustain the affirmation during the pre-ophthalmoscopic period are by no means valueless, for the ophthalmoscope is not indispensable, always, to determine where an injury has been inflicted or whether an eye has been actually blinded or palsied. We might begin the citation of authorities with Hippocrates and continue it to the present time, and we should find that they include the most learned men and most discriminating observers of the medical world. Let me name a few of those of the past century who have recorded themselves on the affirmative side of this question: Beer,[8] Guthrie,[9] Wardrop,[10] Middlemore,[11] Hocken,[1] Chelius,[12] Lawrence,[13] Hutchinson,[14] de Wecker,[15] Badal,[16] Redard,[17] Norris,[18] Nuel,[19] Noyes,[20] Panas,[21] Chauvel,[22] Spaulding.[23] The list might be greatly extended, but this is sufficient to show the credibility and number of the witnesses. Many individual cases have otherwise been reported, which are said to be due to fracture involving the walls of the optic canal or orbit, but in which there is a possible doubt. For example, Snell,[5] in his report above referred to, included 2 cases, Nos. 2 and 3, of this class; Posey[24] also reported a case of the same kind to the College of Physicians of Philadelphia in 1899; and others have reported similar cases.

I can not reproduce the long list of individual cases which are scattered through medical and ophthalmologic literature, but must refer those interested to the various authorities who have recorded them, some of which I have already named. It seems to me that there is room, in those cases that I have studied, to doubt that there was fracture at the optic foramen or of the orbital walls, or injuries of the disabled nerves, either by laceration, contusion, concussion or extravasation of blood. In most of them the injury has been found to exist in some branch of the fifth or trifacial nerve alone, either the infraorbital, nasal, frontal or supraorbital, and not in the least to involve the optic or motoroculi nerves. That the results described might be indirect seems possible, when it is recalled that there are so many well-authenticated cases recorded, in which paralysis of the intraocular or extraocular muscles and blindness more or less complete have supervened on some disease (not injury) of the trifacial, and particularly of the branches distributed to the teeth. Furthermore, it should be remembered that this great nerve, with its extended distribution, has numerous and important relations, and it is not strange that authors should have concluded that disturbances originating in it may so react on the vasomotor nerves and nerve centers as to interfere with the nutrition of the eye, to check its movements, and even to suspend, partially or completely, temporarily or permanently, so delicate a function as vision.

This reaction has been acknowledged and studied by Brown-Séquard,[25] by Jonathan Hutchinson,[14] by Rondeau,[26] by Hughlings Jackson and by others, and they have designated it as "reflex." Furthermore, it has been claimed that these eye reflexes may originate elsewhere than in the branches of the fifth nerve, and particularly in the genital organs and the intestinal tract. Jonathan Hutchinson[14] says that these reflexes are probably due in many cases "to an influence exerted through the vasomotor nerves only, by which are induced alterations of blood supply to the affected part. It is probable, however, that nutritive alterations may be induced through the nervous system independently of any primary change in the caliber of the blood vessels."

When I recall the anatomy of the bony structures immediately surrounding the optic nerve, and the difficulty of fracturing the canal through which this nerve enters the orbit, and when I stop to think that it is most difficult to implicate any of the other orbital nerves in a fracture that would involve either the sphenoidal fissure or the orbital walls, I am led to question the sufficiency of the fracture theory in the class of cases which I am discussing, and am inclined to accept, at present, for want of a more satisfactory explanation, the reflex theory.

I shall now detail from my own experience a few cases which have appeared to me not to be easily accounted for on the fracture or injury theory.

CASE 1.—Paralysis of the right superior levator palpebræ, and partial paralysis of the right superior rectus muscles following a punctured wound on the right side of the nose, at the inner angle of the eye; recovery.

6. Purtscher: Archives of Ophthalmology, 1894, vol. xxiii, p. 361.
7. Friedenwald: Archives of Ophthalmology, 1894, vol. xxiii, p. 403.
8. Beer: Lehre von den Augenkrankheiten, Wein, 1813, vol. i, pp. 176, 185, 189.
9. Guthrie: Lectures on the Operative Surgery of the Eye, London, 1823, p. 100.
10. Wardrop: The Morbid Anatomy of the Human Eye, London, 1834, vol. ii, p. 194.
11. Middlemore: Treatise on the Diseases of the Eye, London, 1835, vol. ii, p. 364.
12. Chelius: System of Surgery, translated by South, London, 1847, vol. i, p. 430.
13. Lawrence: A Treatise on the Diseases of the Eye, American edition, Philadelphia, 1854, p. 125.
14. Hutchinson: Royal London Ophthalmic Hospital Reports, 1863, vol. iv, Part I, p. 120.
15. deWecker: Annales d'Oculistique, 1866, vol. lv, p. 130; and Traité Théorique et Pratique des Maladies des Yeux, Paris, 1868, vol. ii, p. 437.
16. Badal: Société de Biologie de Bordeaux, January, 1877, quoted by Yvert in Traité Pratique et Clinique des Blessures du Globe de l'Oeil, Paris, 1880, p. 544.
17. Redard: Bulletins et Mémoires de la Société Française d'Ophthalmologie, 1886, vol. iv, p. 263.
18. Norris: Medical Ophthalmology in vol. iv, Pepper's System of Medicine, Philadelphia, 1886, p. 788.
19. Nuel: deWecker and Landolt, Traité Complet d'Ophthalmologie, Paris, 1887, vol. iii, p. 698.
20. Noyes: A Text-book on Diseases of the Eye, second edition, New York, 1894, p. 696.
21. Panas: Traité des Maladies des Yeux, Paris, 1894, vol. ii, p. 735, and in other of his writings.
22. Chauvel: Etudes Ophthalmologiques, Paris, 1896, p. 290.
23. Spaulding: Transactions of the American Ophthalmological Society, 1900, vol. ix, p. 83.
24. Posey: Ophthalmic Record, 1899, vol. viii, p. 314.
25. Brown-Séquard: London Lancet, 1861, vol. ii, p. 30.
26. Rondeau: Des Affections Oculaires Reflexes, Paris, 1866, pp. 53 and 54.

Patient.—J. V. B., male, aged 24, laborer, consulted me on Aug. 1, 1903, for inability to raise the right upper lid.

History.—Ten days previously when fishing, a comrade threw a fishpole toward him, and the small end struck him on the right side of the nose in the region of the lachrymal sac, producing a puncture of the skin. He was very sure that the pole did not pierce the orbit. Neither the upper eyelid nor the eyeball was injured at any point. The eye was dressed and bandanged over night, and the next morning, on removing the dressings he found that he could not raise the upper eyelid.

Examination.—At the time of this consultation there was complete ptosis of this eyelid. On raising it with my finger, he said there was slight diplopia on turning the eyes upward and to the left, but in the primary position he saw singly. Inspection seemed to indicate unrestricted and normal rotation of the eye in all directions except upward. The pupil was normal in size, and responded normally to light. Vision was normal. Iodid of potassium was given internally.

August 29. The ptosis had nearly disappeared, but he continued to see double on turning the eyes upward.

September 12. The function of the levator palpebræ and superior rectus muscles was fully restored, and the ptosis had entirely disappeared.

CASE 2.—Paralysis of the left third cranial nerve following a fall from a bicycle.

Patient.—P. M., male, aged 23. Referred to me by Dr. Mickle, Nov. 3, 1898.

History.—On August 27, preceding, he fell from his bicycle and struck his head on the pavement. There was no external wound nor injury of the eyeball but he was unconscious for several hours. On recovering consciousness there was found to be total paralysis of the left third cranial nerve, with the attending symptoms of ptosis, divergent strabismus, dilated pupil, etc. For some time afterward there was confusion of the intellect and impairment of memory.

Treatment.—At the date of consultation the paralysis was much improved, and the vision of each eye was five-fifths, although both optic discs seemed rather pale. I suggested the internal use of iodid of potassium, and the local application of electricity. I have never seen the patient since.

CASE 3.—Paralysis of the external rectus muscle of the right eye following a blow over the eye; persisted at the end of four years.

Patient.—I. B., male, aged 13. Referred to me by Drs. W. D. Greene and E. Clark, Feb. 21, 1898.

History.—Four years previously he was struck over the right eye with a small tin can attached to a string, which another boy was playing with and swinging. The eyeball was not injured. Immediately afterward the right eye began to converge, and has remained convergent up to the present time. He was unable to turn the eye outward beyond the median plane.

Examination.—Vision equaled fingers at one to two feet. Pupil reacted well to light and was of normal size. Nothing abnormal could be found in the fundus, even after dilating the pupil with homatropin. The vision of the left eye equaled five-fifths. No treatment was advised, and the patient was not seen again.

CASE 4.—Paralysis of the right external rectus muscle following a fall and striking on the back of the head; recovery.

Patient.—R. M., male, aged 15. Referred to me by Dr. A. J. Colton, July 23, 1903.

History.—About three weeks previously was run down by a bicycle, and in falling struck, as he says, the back of his head. He was unconscious for a short time, and afterwards had severe headache. He at once began to see double, and the right eye was found to be convergent.

Examination.—At the time of consultation there was almost complete paralysis of the external rectus muscle of the right eye. The vision was normal in each eye, and so was each fundus. The eyeball had not been injured, and there was no evidence of intracranial hemorrhage.

Treatment.—I advised iodid of potassium to be given internally, and the covering of one eye until the paralysis disappeared.

August 27. Paralysis was much improved. Advised the continuance of the same treatment.

Later, I was informed that the case had entirely recovered.

CASE 5.—Paralysis of the external rectus muscle of the right eye following a slight bruise over the eye; recovery.

Patient.—H. B., male, aged 50, railroad employe, consulted me on March 27, 1897.

History.—He fell out of the door of a baggage car a few days previously, and struck his head against an object, leaving a slight bruise over the right eye near the hair of the scalp. There was no loss of consciousness and no dizziness. Immediately after the injury he began to see double.

Examination.—On examination I found that the right external rectus muscle was partially paralyzed, leaving a pronounced convergent strabismus. Fundi of both eyes were normal.

Treatment.—After correcting a slight hypermetropia the vision of each eye equaled five-fifths. Strychnia was given internally, and the paralysis disappeared after a few weeks.

CASE 6.—Paralysis of the external rectus muscle of the right eye, following an operation in the nose; recovery.

Patient.—E. H., woman, aged 23. On Jan. 24, 1898, I was called in consultation to see the patient by Dr. Horace Clark, and obtained the following history:

History.—On January 17, the physician removed the right middle turbinated bone, and then proceeding some distance backward and upward, undertook to remove further bony obstruction with a gouge by making light taps on it with a mallet. This did not seem sufficient, so he gave it a harder tap, when she at once complained of severe pain on the right side of the head and forehead, which continued for about an hour. Immediately after the onset of the pain she began to see double, and the physician noted that the right eye was convergent from paralysis of the external rectus muscle. Two days afterward a distinct ecchymosis was observed in the right lower lid, and there was also a slight ecchymosis of the conjunctiva of the eyeball on the lower and outer side. It was not possible, the physician said, for the chisel to have pierced the floor or apex of the orbit at any point. Dr. Lucien Howe had also seen the case.

Examination.—Examination showed that the vision of the eye seemed to be normal, although test letters were not used. There was still some ecchymosis of the lid and conjunctiva, but otherwise the structural appearances of the eye were normal. The ophthalmoscope showed an unusual redness of the optic disc, which perhaps was normal, as the same appearance was present in the other eye. I expressed the opinion that the case was one of reflex paralysis of the external rectus muscle, and gave a favorable prognosis.

February 2.—On examination at my office, the paralysis was somewhat improved. There was refractive error in each eye, and without correction vision equaled five-sixths each. With correction it was five-fifths each. With the ophthalmoscope there was seen the same unusual redness of both optic discs. Ordered the correcting glasses.

April 9.—The right external rectus muscle had entirely recovered its normal strength, and the convergence had disappeared.

CASE 7.—Blindness following cut over the left eye, extending through the eyebrow and into the base of the orbit.

Patient.—C. C. H., male, aged 23, musician, consulted me on Nov. 17, 1896.

History.—Three days before, when in a house of ill-fame, he was attacked by one of the girls and struck with a case-knife, inflicting a wound over the left eye which extended through the eyebrow from above, downward and outward into the orbit. He was taken to the Emergency Hospital on Michigan street, and attended by Dr. Francis J. Carr, who closed the wound with sutures and on the third day sent him to me.

Examination.—I found some swelling of the eyelid and of the orbital tissues. The pupil was dilated, and vision in this eye was totally lost, even to the strongest light. There was

no injury of the eyeball. The ophthalmoscope showed that the refractive media were clear, and the fundus normal.

Treatment and Result.—The case was treated with cold applications over the parts, and medium-sized doses of iodid of potassium were given internally.

On December 1, the swelling had entirely disappeared, there was some conjunctival and lid ecchymosis, and the movements of the eye were normal, except in the outward direction. There was no vision, and the ophthalmoscopic appearances were the same as before.

On December 21 the movements of the eye were normal except outward, and this was improved. Pupil was a little dilated when the right eye was covered, but responded consensually to light acting on the other eye. The ophthalmoscope showed that the optic disc was becoming a little pale. The potassium, internally, was continued.

February 1. The optic disc had continued to grow pale and the retinal vessels were smaller than normal. The external rectus muscle was still semi-paralyzed, but the patient was able to turn the eye outward considerably beyond the median plane. Vision remained *nil.*

The vision of the other eye was normal.

CASE 8.—Blindness of right eye following a fall.

Patient.—F. M., male, aged 11.

History.—On Nov. 1, 1901, he was riding on horseback, when the horse stumbled and he was thrown to the ground, striking his head on the right side and cutting the skin over the right eyebrow. There was no bleeding from the nose or ears. He was dazed for ten or fifteen minutes, after which he was taken to Dr. G. H. Grant, who dressed the wound and applied a bandage so as to cover both the wound and that eye. The dressing was kept on for a week or ten days. On removing it he found that he could barely distinguish light from darkness with that eye. He had severe headaches for several days after the injury.

Examination.—On November 26, Dr. Grant brought him to me, when the examination showed that the pupil did not respond to light, except in harmony with the light reflex of the other eye. With the ophthalmoscope the optic disc of that eye had a slightly waxy white color, but the retinal vessels were normal in size, and there were no lesions elsewhere in the fundus. The vision was totally lost, even to the strongest light. The vision of the left eye was five-fifths. Potassium iodid was ordered to be given internally, but the prognosis as to vision was unfavorable.

Result.—The optic disc of the right eye gradually passed into complete atrophy, and at the present time the eye is totally blind.

CASE 9.—Injury above and below the left eye followed by blindness after three or four days.

Patient.—L. B., male, aged 21.

History.—On May 26, 1900, while riding on his bicycle, he collided with another bicyclist and fell and struck his head in such a manner as to bruise his nose and face and to produce a cut through the outer part of the left eyebrow. He was unconscious for about an hour, and delirious for about two hours more. He had profuse nose bleed after the fall. Much swelling over and around the eye followed, and for several days it was with much difficulty that the lids could be opened. He thought that on the day following the injury he could see a little, but in three or four days the vision was entirely lost. He also said that there was a sense of numbness in the left side of his face and upper jaw, including the teeth on that side. He was treated by Dr. Borden in consultation with Dr. Lake of Gowanda, N. Y., who referred him to me.

Examination.—On June 11, when I saw the case, I found the wound of the eyebrow healed. There was no swelling of the tissues of the orbit, but there was a small conjunctival chemosis on the outer side of the eye. The movements of the eyeball were normal and unrestricted in all directions. The pupil reacted consentaneously with the other, but did not respond to light when it alone was exposed, and was dilated when the right eye was covered. There was entire absence of perception of the strongest light. The ophthalmoscope showed nothing abnormal, except, perhaps, that the retinal veins were a little distended. The numbness in the left side of face and jaw was still perceptible.

Treatment.—Prognosis, so far as vision was concerned, was pronounced unfavorable. Advised the continued use of iodid of potassium and strychnia internally.

July 3. No vision of the left eye, and optic disc of that eye was pale and waxy in appearance. Continued treatment as before for a few weeks.

April 29, 1903. Optic disc of left eye had become atrophic and blindness continued. The vision of the other eye was normal.

CASE 10.—Immediate blindness of left eye following an injury at the base of the orbit, at the lower and inner portion.

Patient.—T. K., male, aged 36, occupation, foreman in a metallic bedstead manufactory; was brought to me by Dr. Charles P. Chapin of Buffalo on Aug. 30, 1903.

History.—The right eye had been blind for three years with cataract, caused by being struck with a piece of iron. Two days previously (August 28), while working in the manufactory, he bent over to reach for something and struck a projecting wire, the end piercing the lower lid of the left eye sidewise from without, inward, and slightly, but not directly, backward. The skin was torn for perhaps a third of an inch at a point just above the lower margin of the orbit, and a little beyond the center of the lid toward the nose. Patient insisted that the wire did not penetrate more than one-half inch, if it did to that extent, even. Immediately after the injury he found himself totally blind in the left eye, and, having been blind from cataract in the other eye before this, the outside world was now entirely closed to him so far as his vision was concerned. There was not the slightest disturbance of consciousness or equilibrium. He was taken to a physician nearby who closed the external wound with a suture, and declared to him that the eyeball was not injured, and that he thought that the vision would return after a few days.

Examination.—When first examined by me, August 30, there was no swelling of the lids, no effusion nor swelling of the cellular tissue of the orbit at any point. There was, however, some ecchymosis of the lower lid, and a very small ecchymosis of the conjunctiva of the lower part of the eyeball. I examined very carefully for evidence of a wound of the eyeball, but I did not find the slightest. Neither was there any evidence of deep penetration of the orbit. Patient said that the hemorrhage from the wound was very slight, and that there was no bleeding from the nose. There had been no pain since the injury was inflicted. Further examination of the eye showed that the pupil was dilated when the other eye was covered, and that it did not respond to light. It did, however, contract consensually on exposure of the right eye to light. The refractive media were absolutely clear, and the fundus was distinctly seen. Not the slightest change in the eyeground could be found, unless it was that the retinal veins were a little more distended than normally, although this, even, was questionable. There was not the faintest perception of the strongest light. I predicted permanent blindness of this eye with subsequent atrophy of the optic nerve.

Treatment.—I at once took steps to restore the vision of the right eye which had been injured three years ago by being struck with a chip of steel. Examination of it revealed the presence of a small piece of iron lodged in the iris on the nasal side about half way between the pupillary and peripheral margins. The lens was fully opaque and the iris was adherent to it at the point of injury. Pupil responded fairly well to light, and vision equaled good perception of light throughout the visual field. The presence of the steel was shown both by inspection and by its being attracted by the electro-magnet. On September 1, I made an incision through the cornea at the inner margin and loosened the steel with a Sweet electro-magnet, and withdrew it from the anterior chamber with a small iris forceps. The eye recovered rapidly from the operation, and on September 15 I extracted the cataract without iridectomy. The recovery from this operation was also rapid, but the capsule was left in a thickened and opaque condition. On October 12, I

split the capsule with two needles, leaving a good central opening. On October 26, with + 14.00 D.S., vision equaled five-sixths and with + 3.00 D.S. added, vision equaled Jaeger No. 1 at fourteen inches. Glasses were ordered accordingly, and he resumed his occupation.

At the present time the vision of the left eye remains totally lost, and the optic nerve has become quite atrophic. With the right eye he sees as before.

Of these 10 cases, 6 are paralysis of the extraocular muscles, without any evidence of the muscles themselves or their nerve supply being directly injured, either by a contusion, compression or hemorrhage, and 4 are cases of unilateral blindness which vary somewhat in the nature of the injury. In Cases 7 and 10 it seems impossible to account for the blindness, on the assumption that the optic nerve was injured directly, or by compression through fracture of the optic foramen. In the one it does not seem to me that the knife could have penetrated to the apex of the orbit, and cut or bruised the optic nerve without seriously injuring, also, other important orbital structures, or that the sphenoid bone could have been fractured at the optic foramen through impact on the vault of the orbit. In the other case we have the positive statement of the patient that the wire did not penetrate deeply into the orbit, and the symptoms following the injury, so far as the orbital structures are concerned, are opposed to such a supposition. In the other 2 cases the injuries were more violent, and while I can not see how they could cause a fracture at the optic foramen, yet I am not prepared to say that such an occurrence was not possible. My present opinion, however, is that none of these ten cases is clearly explainable on the fracture or direct injury theory. Are they not all reflex?

DISCUSSION.

DR. S. D. RISLEY, Philadephia, said that he is not quite willing to accept the theory of reflex origin of the blindness in the cases mentioned. He has never been able to grasp a satisfying comprehension of the reflex origin of a disease; particularly of one so serious as to cause blindness, though there are certain clinical facts which seem to bear out this theory. The late Dr. Flagg several years ago published in the *Dental Cosmos* a report of a case of total blindness which was brought to him for inspection of the teeth. Dr. Flagg found that placing a piece of ice on a certain tooth demonstrated excessive sensibility to cold in that tooth. Extraction of the tooth was followed by almost immediate restoration in sight. The pupils, which had been widely dilated, contracted and vision returned to normal. A curious deposit was found in the pulp cavity of the tooth. Pressure on the dental branch of the nerve seemed to have this marked effect on vision. Dr. Risley mentioned the case of a man who had a high degree of mixed astigmatism and who had worn glasses for several years with much comfort, but finally came back with a great deal of discomfort. On investigating the mouth Dr. Risley found that the premolar was double and that the first tooth had not been thrown off. After extraction of the deciduous teeth there was complete relief from headache and from impaired vision. Dr. Risley has seen eight cases, six of which were totally blind in the eye involved, one partially blind in both eyes and in the other paralysis of the third pair of nerves, the man having been injured by being thrown from his buggy by a train. In this case the eyelid was paralyzed afterward and with no injury to the nerve. A carter was thrown from his cart, striking on the left superior orbital rim and went blind in six weeks from atrophy of the optic nerve on the side of the injury. A small child fell and struck the inferior orbital rim against the end of a stick she was carrying in her hand, apparently not causing any very serious injury. A few days later she complained of impaired sight and went blind with atrophy of the optic nerve. Another case, a man, was struck on the top of the head anteriorly with a piece of scantling and in a few days noticed impairment of sight and recovered finally with only 1/10 vision. These were very interesting cases to Dr. Risley, but so far from regarding the blindness of reflex origin he has been inclined to think that the optic nerve itself had been injured, the force of the blow being conducted along the walls of the orbit and pressing the nerve, whether there had been a fracture of the foramen or not; or in the case of paralysis of the oculomotor that the nerve had been injured in the sphenoidal fissure. While on a visit in the west Dr. Risley saw a case of a farmer who was thrown from his horse-rake, sustaining a fracture of the temporal wall of the left orbit. There was profuse intraocular hemorrhage and total blindness ensued with optic atrophy in the injured eye.

DR. G. E. DE SCHWEINITZ, Philadelphia, regretted that Dr. Hubbell should lend the weight of his authority to a theory which rests on so slight a foundation as that of reflex blindness. Dr. de Schweinitz said that while it is not always possible to state with accuracy the underlying pathologic conditions which cause loss of sight under the circumstances which Dr. Hubbell has detailed, and while there is often no clinical evidence, at first, at least, of injury to the optic nerve, it seems to him that most of these cases can be explained without an appeal to a reflex theory. Certainly some are due to hemorrhage in the sheath of the optic nerve, and recent investigations have shown that after comparatively slight blows on the head there may be fracture of the base of the skull, or a fissure running into the optic canal, which of itself would cause to be thrown out much inflammatory material and so make pressure on the nerve, or be the cause of a hemorrhage into the optic nerve sheath. Dr. de Schweinitz considers that some of these cases may be due to an infection, perhaps, of the optic nerve sheath, precisely as an infection may be caused in the pleura by the removal of a stitch, or from a wound on or above the brow. Finally, if there should be a sustained vasomotor alteration affecting the retinal circulation, such as probably takes place with certain toxic agents in the system, the ganglion cells of the retina are starved and degenerate and cause an ascending atrophy of the optic nerve.

DR. ALVIN A. HUBBELL said that he does not think that Dr. de Schweinitz has explained away the reflex theory. He should be glad to accept the fracture or injury theory, if it seemed sufficient, but in many cases it does not. Moreover, the reflex theory appeals to him, as there are cases of blindness and oculomotor paralysis in which there has been no injury of any kind, and which were the result, apparently, of disease remote from the eye itself. Many such can be gathered from both American and European authorities. Dr. Hubbell confessed that the reflex theory has its difficulties, and he desires further enlightenment. After eliminating cases of undoubted traumatic involvement of the ocular nerves whose function is impaired or lost, there seems to remain a residuum of cases in which the injury does not reach to or implicate them, and that belong to that class heretofore known as reflex.

CONTRACTION OF THE VISUAL FIELD;

A SYMPTOM OF ANESTHESIA OF THE RETINA IN CHILDREN.*

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The term retinal anesthesia is usually employed to designate a rather vague condition in which the function of the retina is temporarily suspended or its sensibility greatly diminished. In many text-books it is included in retinal diseases only for consistency's sake and to describe a possibility of the occurrence of such a con-

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dition. But from the descriptions usually given it would seem that authors had never encountered the affection as a purely independent disease having definite symptoms, treatment and prognosis. It is my purpose in this paper to present the features of this condition as I have met with it and to substantiate my statements with brief histories of my cases. This retinal anesthesia, in my experience, is characterized by a reduction in the acuity of vision and marked contraction of the visual fields, with no reversal in the color fields. There are no other symptoms, and the eyeground is normal in every respect. The affection is by no means infrequent and is usually observed in children from six to fourteen years of age of both sexes, being most common in children of the better class of people. The acuity of vision is rather suddenly diminished, and this diminution is first manifested by the child becoming awkward and by stumbling over objects not in the direct line of vision. An inability to read except in very strong light makes its appearance in a very short time, and soon distant vision also becomes reduced. At this stage of the affection the ophthalmologist is usually consulted and a careful examination of the visual field will reveal marked contraction, varying from 30 to 55 degrees in both the vertical and horizontal meridians, and a reduction of vision to one-fifth normal or less. The color fields are contracted proportionately and maintain their relation to each other. Visual scotomata are absent. The ophthalmoscopic examination reveals nothing abnormal. The pupils are semi-dilated and somewhat inactive. The patients are usually in good health and complain of no symptoms other than the great loss of vision.

The treatment which I employ in these cases is the daily application of a weak constant electric current, one or two milliamperes "voltaic alternatives." The negative pole should be placed over the eyeball and the positive pole over the opposite temple or nape of the neck. The sitting should be of about ten minutes' duration. The fields should be taken daily during the treatment and marked improvement will be observed within a few days. Recovery is prompt. As in other ocular conditions, the state of the refraction should be ascertained, but any error present should not be corrected until after a thorough course of electric treatment. The refraction should not be considered as an essential portion of the treatment for reasons I shall give later. The total number of cases under observation have been twenty-four.

CASE 1.—A. B., girl, aged 9 years, was brought to me in December, 1887, with a history of general awkwardness and diminution of vision, which in examination by test letters was found to be R. E. 20/70, L. E. 20/50 (one letter). The visual field was shown by the perimeter to be markedly contracted. The eyeground was normal with the possible exception that the veins were dilated and tortuous. The refraction was examined and Sph. plus 0.25 was found for each eye; glasses were not prescribed. The patient was referred to Dr. G. G. Faught for electrical treatment as described, and after five applications the visual fields and vision were restored to normal. The patient was then discharged. She was again seen by me in November, 1894, but had had no recurrence up to that date.

CASE 2.—F. H., boy, aged 10 years, consulted me in February, 1894, with a similar history, and the additional symptom of headache. Examination of the visual fields also showed marked contraction to 10 degrees in all meridians. Hyperopic astigmatism was detected at this time (Cyl. plus 0.50, ax. 90), confirmed by retinoscopy and trial lenses. The electrical treatment was employed four times, and nine days after the first visit to me the fields were found normal. The astigmatic correction was refused at this time. When seen in April, 1904, he stated that he had had no recurrence. Examination of the fundus showed the optic nerve to be red and excessive pigment in the choroidal coat. The ametropia under atropin, and confirmed by retinoscopy at this time, was R. E. Sph. —3.00, L. E. Sph. —1.00, which were prescribed, a change from hyperopic astigmatism cyl. plus 0.50 ax. 90 in both eyes to present condition of myopia which had developed during the past ten years.

CASE 3.—H. P., a boy, aged 10 years, came under my observation August, 1895, with visual disturbances and slight headache. The fields were found contracted irregularly to 10 to 20 degrees. Mixed astigmatism was detected and corrected. Sph. plus 0.25, cyl. —0.50, ax. 180; L. E., Sph. plus 0.37, cyl. —0.50, ax. 180. After several applications the field became normal in extent and the patient was discharged. In February, 1897, the patient again consulted me, and a slight contraction of the lower field was detected. No change required in the glasses. In January, 1904, I again saw the patient, at which date the fields were normal, and no change required in the glasses.

CASE 4.—C. N., female, aged 12 years, was seen by me in January, 1896, with the complaint of failing vision, which by means of test letters was shown to be 20/100 in both eyes. The correcting lenses (B. E. Sph. plus 0.50) served to increase the vision to 20/50. The fields were found to be contracted to 10 degrees in all meridians, but were restored promptly to normal after eight electrical treatments, combined with rest. Vision, both eyes, 20/20. In April, 1899, there was a slight recurrence, possibly owing to her greatly weakened condition. The patient died of pernicious anemia in November, 1896.

CASE 5.—H. C., girl, aged 10 years, came under my professional care in October, 1897, with vision R. E. 5/100, L. E. 20/200, and fields contracted to 20 degrees in the principal meridians. There was a history of a blow on the head. As there was no change in the color of the optic nerves, I did not think that the blow caused any change in the vision or fields. The electrical treatment was instituted, and within four weeks the left field was normal, but the right was still contracted. Three months later, however, the right field was normal. Myopia (Sph. —1.00) was present. In March, 1904, a recurrence occurred, due, in all probability, to excessive study. The refraction was examined and high myopic astigmatism detected and corrected (R. E., Sph. —4.25, cyl. —0.50, ax. 5; L. E., Sph. —4.50, cyl. —1.25, ax. 180).

CASE 6.—H. S., a girl, aged 11 years, was brought to me Feb. 25, 1899, with failing vision (20/200), both eyes, and contracted fields to 15 degrees without obvious cause. Lenses cyl. —0.50, ax. 180, both eyes, failed to improve vision more than 20/70. After five electrical treatments the fields became normal, and concave (cyl. —0.50, axis 180) cylindrical lenses were accepted, with vision restored to 20/20. No recurrence.

CASE 7.—J. G., a boy, aged 10 years, consulted me in November, 1899, with failing vision, 20/200, which lenses failed to improve. There were no structural changes to account for this loss of visual acuity. The perimeter demonstrated contraction of the fields to 30 degrees. After eight electric treatments the fields became normal and visual acuity increased to 20/20. There was no recurrence to my knowledge.

CASE 8.—J. J. D., boy, aged 9 years, complained of failing vision Feb. 21, 1899. The fields were found contracted to 30 degress, vision 20/100, and the optic nerves pale. Glasses afforded no improvement. The electrical treatment was employed twice, when the visual fields and vision were found to be normal.

CASE 9.—B. H., girl, aged 11 years, was brought to me Oct. 12, 1900, because of loss of vision. Examination by means of test letters showed the vision to be 20/70 in the right eye and 20/100 in the left eye. The fields were contracted to 10 degrees in the vertical and 20 degrees in the horizontal meridian. There was a very small degree of simple hyperopia. Seven electric applications restored the fields to normal, and vision 20/20.

CASE 10.—S. P., a boy, aged 8 years, complained of failing vision Oct. 21, 1898. No other subjective symptoms were present. The fields were found contracted to 20 degrees in both meridians and vision 20/100. Slight error of refraction was detected, but lenses afforded no improvement. Restoration of fields and vision occurred after nine electric applications.

CASE 15.—Indian girl, aged 12 years, complained of failing vision, November, 1902. R. E. 20/100, L. E. 20/40. A slight error of refraction (Sph. plus 0.25) was present, but glasses were not worn. Fields contracted to, R. E. 30 degrees, L. E. 40 degrees, in both meridians. Improvement followed seven applications of electricity. She had all the characteristics of her race, being a pure-blooded Sioux, strong and robust.

This is the only case among the red race I have ever found, having examined thirty-five hundred children.

The other thirteen cases were similar in character—the same contracted fields, with loss of vision; good results obtained by the use of electricity. Two cases are under treatment at the present time.

In presenting these cases, the points to which I wish to lay great emphasis are the occurrence of contracted visual fields in children between the ages of 8 and 16 years having unaccountable diminution of vision and the prompt restoration to normal vision and enlargement of the visual fields, after the use of the constant electric current (voltaic alternatives). These observations I believe to be original with myself. A few other ophthalmologists have closely approached them, however. W. F. Southard[1] observed in 1896 a case occurring in a delicate woman, 26 years of age, in which there was a history of headache and diplopia for a period of three months, followed by sudden blindness. The fields were contracted and there were hemiopia and absolute scotoma of fixation in the right eye. Examination of the refraction revealed the following error: R. E. C—1.75 ax. 180 L. E. C.—1.25 ax. 180. The wearing of correcting lenses increased the vision. Improvement also occurred under the influence of rest, but recurrences of the blindness were common. Hysteria was excluded as an etiologic factor. P. B. Wing of Tacoma[2] observed a case in a robust, well-nourished boy of 8 years, of failing vision, which lenses failed to relieve. It became progressively worse, and the fields became contracted. The condition was attributed to coffee, which the patient consumed at the rate of six to eight cups daily. One month after the institution of proper treatment vision was normal and the fields full.

The cases I have described I believe to belong to the class of functional disorders of the retina termed retinal anesthesia, as there seems undoubtedly to be a temporary suspension of sensibility in that structure. Apparently it seems to be a condition of fatigue due to overwork at the time of life when the sensory elements are least prepared for any strain. It will be recalled that these cases occurred between the ages of 8 and 16 years, and mostly in robust individuals, and not limited to the white race alone, as I have mentioned one case where this condition was found in a robust Indian girl.

Hysteria, however, I think, may readily be excluded from the etiology. The patients usually possessed no concomitant signs, the color fields were not inverted, nor were there any of the ordinary ocular symptoms of hysteria. Eyestrain has been suggested as a possible cause, but it will be remembered that in only three were there any of the ordinary asthenopic manifestations. While errors of refraction were corrected in most cases, there were seven instances in which the current was used alone, and the response was prompt as usual and there were no recurrences. Frequently the correction accepted during the affection was rejected when the fields and vision were restored. The only case in which there was a complete return of the condition was one having myopia, which was carefully corrected during the first attack, but required a change of lenses at the time of the subsequent attack; as this was a case of progressive myopia, the change in the glasses was due to this alone. In one case vision was normal and the fields contracted. Glasses were not called for, and recovery was prompt by the use of electricity.

The manner in which the electric current brings about its beneficial effects in these cases is not clear. It has been suggested to me that the constant current redirects the proper nerve impulses to the retina, and at the same time it would seem that these treatments served to increase the blood supply, and consequently the nutrition of the affected structure. In all of the cases mentioned, general rest from study was of value, showing that in large part the affection was nutritional in origin, despite the fact that the patients were apparently well nourished and healthy.

It gives me great pleasure to quote Dr. G. Granville Faught's experiences in the evolution of this treatment:

"Twenty years ago electrotherapeutics was mainly a matter of empiricism, and in no department was it more so than in that of the eye. Erb of Leipzig, in a publication dated 1883, says: 'We are thus compelled to acknowledge the deficiency of the theoretical basis of our electrotherapeutic knowledge; now, as formerly, it must be studied on an empirical basis.'"

As to the eye, Erbe says: "To my regret I must admit that very little is known with regard to the pathologic relations of the electrical irritability of the retina and optic nerve." In the use of the electric current at this time, Erb particularly advises that "sudden interruptions or reversal of the current should be avoided"; and, again, "do not make any interruptions or changes of polarity." Strümpell (Vickery, Knapp, Shattuck), writing in 1887, follows the teaching of Erb, and on the treatment of ocular paralysis says: "Of other remedies galvanic treatment gives the speediest relief. We pass weak currents transversely through the temples, or, what is usually better, put the anode on the back of the head and apply the labile kathode to the closed eye. Great caution, weak currents, and the avoidance of any great variations in the current are, of course, necessary; the current should not be too strong, and there should be no abrupt changes in it."

It was at this time and under these conditions that Dr. Fox and myself began the study of electrotherapeutics in relation to the eye. Among many other cases, my attention was early directed by Dr. Fox to those of retinal anesthesia, and in connection with these I conducted a considerable experimenture. In many cases a definite result was obtained by the ordinary application of the galvanic current, but not sufficiently speedy and certain to be satisfactory, so that I was finally led to consider the subject of Volta's alternatives. From the days of Volta it has been a well-determined fact that "if the current has been closed for some time in one direction, the irritability of the nerve is increased to opening in the same direction or closure in the opposite." However well known, no use was made of this in the matter of therapeutics until I took it up in connection with the treatment of retinal anesthesia. I was sure that what was eminently true as to motor phenomena would prove equally true in connection with sensory conditions, and my belief has been abundantly confirmed. After several years of experimenture, I affected a method of therapy which I designated as "Voltaic Alternatives" (Houston, Dictionary, "a term used in medical electricity to indicate sudden reversals in

1. Pacific Med. Journal, May, 1902.
2. Annals of Ophthal., April, 1903.

the polarity of the electrodes of a Voltaic battery"), and I devised a "pole-changing handle."[3]

I regret to state that little or nothing has been done since then in this matter of voltaic alternatives. Dr. Fox and myself have had eminent success in numerous lesions of the eye, vitreous opacities, retinitis-pigmentosa, chorio-retinitis and choroiditis, by this method, and it is to be hoped that this article will lead others to follow in our footsteps.

In ordinary usage I employ a current of 2 milliamperes, and reverse it at intervals of two seconds, continuing the treatment to a period of ten minutes.

DISCUSSION.

DR. WALTER L. PYLE, Philadelphia, said that he believes this affection to be a reflex inhibitory paresis of the peripheral visual cells in the retina, acting in the same manner as a reflex paralysis of the orbicularis in certain cases of uncorrected or improperly corrected ametropic eye-strain. He has often noticed the deficient vision without sufficient ophthalmoscopic changes in ametropic young persons, particularly school girls, and he has seen speedy restoration of full visual acuity by the simple use of the ametropic correction. He has never measured the visual fields in these cases, and thinks that full credit should be given to Dr. Fox for calling attention to the perimetric findings. Dr. Pyle thinks that overwork is undoubtedly the main factor. In younger persons, malnutrition is probably an important cause. It is often due to ametropic eye-strain, and after proper refraction most of the patients recover without the application of electricity. The constant current probably overcomes the reflex inhibitory influence and undoubtedly greatly hastens the recovery of visual acuity. However, the careful correction of even very low degrees of refractive error is of great importance. Small amounts of astigmatism, particularly at oblique axes, should be looked for.

DR. E. E. HOLT, Portland, Me., stated that he has observed several of these cases. On taking the field of vision it is found to be markedly contracted. His experience has coincided with that of Dr. Fox, that electricity restores normal vision, and he has not found that they relapsed. The condition, he thinks, is brought about by overwork.

DR. G. E. DE SCHWEINITZ, Philadelphia, asked what is the distinction between the cases reported by Dr. Fox and those which have been described many times by various writers under the names of retinal asthenopia, retinal anesthesia and nervous weakness of sight, the inappropriateness of which he recognizes. These conditions occur in young subjects, usually school girls near the age of puberty, who present reduction of acuity of vision unimproved by optical therapeutics, contraction of the visual field, and normal ophthalmoscopic appearances. They recover under proper hygienic treatment. Dr. de Schweinitz agreed with Dr. Fox that they do not in the least represent hysterical manifestations because the ordinary signs of the hysteric field are not present, that is, permanent contraction and frequent inversion of the color lines. They do present, however, an unstable contraction of the visual field, and sometimes the so-called oscillating field. They seem dependent on some instability of the whole nervous mechanism.

DR. L. WEBSTER FOX said that there is a suspension of function in the retina and that it is not a hysteric one, he is sure. The contraction of the color fields corresponds to the field of vision at the time. If the normal field is down to 10, then all colors are visible up to that point. There has seemed to be no reversion of the fields, and therein it differs from the other class of cases (hysteric). In 1884 it was discovered that by changing the current rapidly in a motor nerve function could be restored where otherwise it could not be done. Dr. Faught was the first to adopt the idea in the treatment of a sensory nerve, and it is the rapid alteration that seems to bring about the result. He has invented a little handle by which this can be done very nicely. It is marvelous what one or two applications can do in some of these cases.

3. N. Y. Med. Jour., 1886, p. 564.

AN EXACT AND SECURE TUCKING OPERATION FOR ADVANCING AN OCULAR MUSCLE.*

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The fact that many advancement operations have been devised is evidence that there is dissatisfaction with the various methods. Many of these operations are very similar, and if the different descriptions are placed side by side it will be found that they could be arranged in such a manner as to show only slight variations, and yet, like the colors of the spectrum which merge from one into another, the two extremes will be found to be very different and many new principles may be detected which have gradually been introduced. The evolution is slow but upward, those new principles which have proven of value remaining while those not practical and false have been discarded.

I desire to demonstrate† my method of performing this operation, but before doing so wish to call attention to other operations of like character, i. e., muscle-folding operations, in order that those who have done original work in this field may be given due credit.

HISTORY OF FOLDING OPERATIONS.

Knapp[1] gives credit to J. F. Noyes[2] of Detroit for having been first to describe an operation for shortening of the muscle by folding (1874). "The tendon is divided near its insertion, and the distal end brought forward under the proximal end, lapped, and sutured. At the same time a portion of the tendon may be or may not be cut off. The point of insertion of the tendon is not changed in this method. The folding of a piece has, of course, the same effect as if so much of the tendon had been excised." This operation, while having enough points of resemblance to be included in a description of the evolution of shortening operations, is not a tucking operation, as the tendon was cut.

De Wecker[3] performed a folding of the capsule and tendon, which was described in 1885. He makes a vertical incision in the conjunctiva over the tendon and undermines the conjunctiva toward and around the cornea as far as the vertical meridian, opens Tenon's capsule at the lower border of the tendon, passes a hook under the tendon, incising the capsule where it emerges on the upper side. He then inserts one suture into the episcleral tissue above the cornea, and the other end through the opening in the capsule into the upper edge of the muscle on through the conjunctiva, and then ties this suture. A like suture is passed through the lower edge of the muscle and the episcleral tissue below the cornea.

Knapp[4] did a similar operation, which was described in 1886 as an improvement on de Wecker's. Knapp's modification consists in the use of one or two additional sutures inserted in a similar manner between these two

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

† The operation was demonstrated at the meeting on a large manikin.

1. H. Knapp: Norris and Oliver, p. 874.

2. J. F. Noyes: A New Method of Operating for Strabismus. Transactions of the American Ophthalmological Society, 1874, p. 273.

3. De Wecker: Sur l'opération du strabisme au moyen de l'avancement capsulaire, Annales d'Oculistique, vol. xc, 1883, p. 188; La combinaison de l'avancement capsulaire et de la ténotomie, Annales d'Oculistique, vol. xcii, 1885, p. 72; les opérations modernes du strabisme, Archives d'Ophtalmologie, vol. xiii, 1893, p. 1.

4. H. Knapp: Advancement of Tenon's Capsule. Transactions of the American Ophthalmological Society, July, 1886.

sutures. In both of these operations the tendon and capsule were folded on themselves and not divided.

In 1892 Lagleize[5] of Buenos Ayres described a folding operation in which the tendon is folded on itself, or rather the muscle is folded on the tendon. In his operation a piece of conjunctiva is excised over the tendon, a hook is passed under the tendon near its insertion and another under the muscle. One needle of a doubly-armed suture is passed through the muscle and conjunctiva from within outward near the posterior hook, one millimeter from the upper border of the muscle, while the other needle is passed in the same manner one millimeter from the lower border. Both needles are then carried under the conjunctiva to the cornea, into the episcleral tissue, and the threads tied, causing the muscle to be folded on the tendon. The tighter the threads are pulled the greater the effect. The tendon in this operation is not severed.

Savage[6] published, in 1893, the description of his operation. The conjunctiva, and then Tenon's capsule, is cut just below the lower border of the muscle (when operating on a lateral muscle). Through this hole two strabismus hooks are placed; one hook is pushed forward to the insertion of the tendon and the other backward toward the belly of the muscle. One needle of a doubly-armed silk suture is passed through the cut beneath the tendon and forced through the tendon near the upper border, close to the scleral attachment. The second needle is passed through the cut beneath the muscle belly, through the upper border of the muscle, then through the capsule and conjunctiva; the same needle is passed back through conjunctiva, capsule and muscle directly under the last point pierced and near the lower

Fig. 1.—Author's tendon tucker.

border of the muscle, then passed forward under the muscle, to again emerge through the tendon at its insertion just under the point pierced by the first needle. Both hooks having been removed, the two ends of the suture are tied over the Price suture plate, thus producing the fold. The distinctive feature of this operation, which was not practiced in any operation described previous, is the folding of the tendon on itself by introducing sutures only in the muscle and tendon, and not into the sclera, and the use of the Price suture plate to prevent cutting of sutures.

Tenney of Boston devised in 1894 an instrument to aid in the performance of Savage's operation.

Grandclément's operation,[7] described in 1893, is as follows: With a pair of fixation forceps he raises a vertical fold through which he passes the needles of a doubly-armed suture (through the conjunctiva capsule and tendon), making a loop.

Valk,[8] working independently, described his method in 1895. After dissecting Tenon's capsule, he lifts the tendon with his pair of twin strabismus hooks, carries a catgut suture through the tendon from without inward, close to the sclerotic, passes backward under the muscle through the muscle from within outward; crossing the muscle, the suture is reinserted from without inward through the muscle back to a point above or below the place at which the suture was first inserted. Thus the suture is placed like that of Savage. When tied, the tuck is taken. Valk was the first to suggest the use of an absorbable suture.

Greene[9] described a tendon-tucker and his method of tucking in 1899. He says: "I have tried several expedients to get rid of the objectionable features of the operation which I have already mentioned, when, several years ago, I conceived the idea of taking a tuck in the tendon, which I did several times by the use of sutures. I thought it a new idea, but on searching the literature on the subject I found it had been done before by J. F. Noyes of Detroit, in 1874, and Lagleize, in 1892." Greene objected to the use of the conjunctival sutures, and, after producing the tuck, introduced one catgut suture, binding the middle of three layers of tendon; thus he followed the practice of Savage and Valk in introducing his sutures only through the tendon and muscle. His tendon-tucker was an ingenious device, and I am of the opinion that he deserves more credit than he claims for having thus facilitated the performance of this operation.

In a paper published April, 1902, Colburn[10] describes an operation which he performed, and he states that it

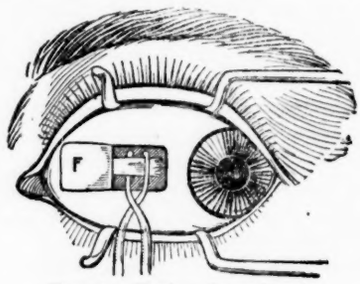

Fig. 2.—Tucker introduced.

was first described by him in a discussion at the session of the American Medical Association in 1888: "The suture was introduced, passing through the tendon at its point of attachment, thence beneath the capsule along the upper margin of the tendon, and backward to the point of entrance. The single suture is then drawn and tied, the conjunctival flap returned to its place and held by a suture." Colburn also describes various other methods of tucking a tendon and shows a cut of a double hook he had used, shaped out of another instrument, and also a crude device made from a pair of ear forceps, to aid in taking the tuck. In addition to the above-described methods, there are others who have done work along similar lines.

In February, 1902, my method[11] was described, but I have since improved it by the incorporation of certain details. This reason, and the additional fact that many ophthalmologists have written requesting a more detailed explanation, induces me to present this description.

5. Lagleize: Archives d'Ophtalmologie, vol. xii, 1892, p. 668.

6. G. C. Savage: Editorial, Ophthalmic Record, March, 1893.

7. Grandclément: La cure du strabisme obtenue ou complété par un simple froncement sousconjonctival du muscle et de la capsule, à l'aide d'une anse de fil, Bulletins et Mémoires de la Société Francaise d'Ophtalmologie, 1893, p. 291.

8. F. Valk: Post-Graduate (N. Y.), July, 1895.

9. D. M. Greene: Correction of Divergent Strabismus by a New Method and New Instrument, Ophthalmic Record, September, 1899.

10. J. E. Colburn. Muscle Tucking—A Report of Cases and Conclusions, Ophthalmic Record, April, 1902.

11. F. C. Todd: A Secure Advancement Operation Performed with the Aid of a New Tendon Tucker, Ophthalmic Record, February, 1902. Improved Tendon Tucker, Ophthalmic Record, March, 1903.

DESCRIPTION OF AUTHOR'S METHOD OF PERFORMING THE TUCKING OPERATION.

To avoid confusion and to enable the reader to secure a more definite idea of the operation, the tucking of an internal rectus will be described. In many cases the external rectus is first tenotomized, then a flap of conjunctiva is dissected up and turned back toward the internal canthus, and Tenon's capsule is freely opened so as to clearly expose the tendon of the internal rectus from its insertion backward for a quarter of an inch. A strabismus hook is now placed under the tendon from above and made to emerge below; the tendon is lifted from the globe to facilitate the introduction of the tucker.[12] The prongs of the tendon-tucker being crossed, the one toward the internal canthus, being uppermost, is placed under the tendon (passing it in at the lower border of the tendon); the strabismus hook is now removed (Fig. 2), the screw head at the distal end of the instrument is turned to the right, causing the upper prong to pass toward the cornea as the lower prong passes toward the internal canthus; this produces the tuck in the tendon as the prongs are separating and causes the eye to turn inward. The tuck should be large enough to secure the desired effect.[13] Catgut sutures are now placed in the two layers of tendon midway between the prongs as follows: Carry the needle of one suture under the upper border nearly to the middle of the tendon, bring it outward through the two layers and tie it; place another suture in the same manner, including nearly the lower

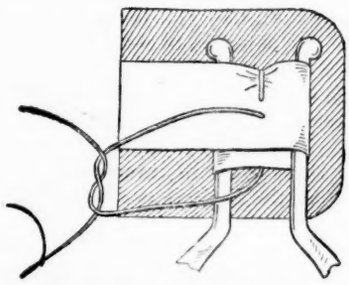

Fig. 3.—Placing of catgut ligatures after tuck has been made.

half of the two layers of tendon (Fig. 3), and tie it.[14] This leaves the nutrient artery undisturbed between these two ligatures. Now carry the needle of a doubly armed silk suture through the two layers of tendon just back of the *upper* catgut ligature from within outward, then up through the conjunctival flap from within outward; pass another similar doubly-armed silk suture just back of the *lower* catgut ligature from within outward and through the conjunctival flap; pass the needle at the other end of the *upper* silk suture underneath the conjunctiva into the episcleral tissues (above and internal to the cornea), bringing it out through the conjunctiva; now tie with only one knot (so that it can be regulated later) these two ends of this *upper* silk suture (Fig. 4). While an assistant holds the two ends of this suture, release the tucker (loosening it by turning the screw head) and remove it. Now insert the second needle of the *lower* silk ligature below the cornea into the episcleral tissues and tie in one knot the two ends of this *lower* suture in the same manner as the *upper* suture was tied. The pressure on the eyeball exerted by the tendon-tucker disturbs for the time being the exact position of the eyeball; it now having been removed, the two eyes may be compared and measured and the silk sutures tightened until the desired effect has been secured. These sutures will not slip as they pull against the catgut ligatures at one end, and are inserted into firm scleral tissue at the other. After the desired effect is secured the second knots are tied (Fig. 5).[15] It will be observed that these regulating silk sutures also serve to stitch the conjunctival flap into place.

This operation is adapted to any case where an advancement operation is indicated and is found of especial service in those rather difficult cases where strabismus has resulted from an overcorrection of an opposite strabismus.

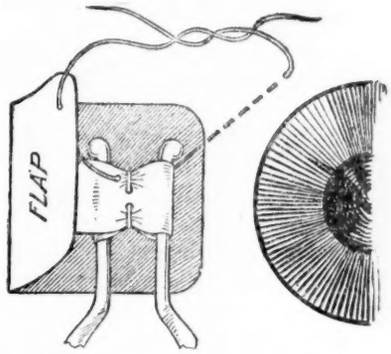

Fig. 4.—Showing placing of upper regulating (or retention) suture.

It is preferable to use cocain anesthesia for all muscle operations, as general anesthesia disturbs the physiologic balance; for instance, in a case of convergent strabismus, the eyes may diverge when the patient is asleep and the operator can not, therefore, determine the effect of his operation until the patient is awake. The surgeon can, however, perform this tucking operation, inserting the sutures and tying only one knot in the silk regulating sutures, and when the patient is thoroughly awake, under cocain anesthesia, these regulating sutures may be adjusted so as to secure parallelism and the second knot may then be tied.

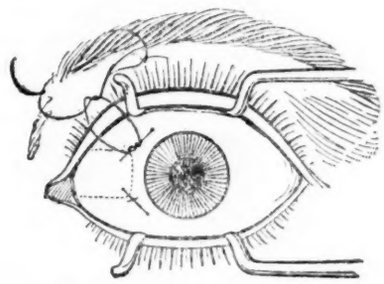

Fig. 5.—Tying of silk sutures.

The advantages of the tucking operation over any advancement operation when the muscle is severed, as given by Savage,[16] are: "First, it is easier of accomplishment; second, its plane of rotation is less likely to be changed when there is no indication for changing it;

12. This instrument is universal, i. e., it can be used on any of the recti muscles. Many of the instruments have been imperfectly made, the commonest fault being a sharp point and inefficient hook at the ends of the prongs so that the instrument slips out during the operation. If correct, the instrument will cause no such annoyance.

13. Chromicized catgut is best to use, as ordinary catgut sometimes absorbs too quickly.

14. The needle is easily introduced through the two layers of tendon by tilting the tendon-tucker so as to lift the prong nearest the cornea.

15. A bowknot may be tied and the ends brought out through the nearer canthus where they may be fastened to the cheek or nose with collodion, thus allowing for more regulation by tightening or loosening the next day or later.

16. G. C. Savage: Ophthalmic Myology.

third, the stitch is not so likely to cut its way out, and, and if it does so, or if the knot should become untied, the case would be no worse than before operation; whereas, if either of these accidents should happen to an advancement, before adhesion has formed, the recession of the muscle might be farther back than its original attachment."

In addition to these advantages, I claim for my method:

1. Exactness. Perfect adjustment of the eye may be secured at the time of operation when tying the silk sutures after the tuck has been taken. (In nearly all advancement operations the operator is obliged to estimate the amount of the effect desired and does not know until his operation has been completed the exact amount of effect that has been produced.)

2. Security. When the operation is completed the stitches can not slip and the tendon will remain where it has been placed.

3. Ease. The operation is very easy of performance, made so by the use of the instrument.

4. Flexibility. The smallest or the greatest amount of deviation may be produced.

5. Strabismus of high degree. The greatest degree of effect can be produced when accompanied by a tenotomy of the opposing muscle, and thus a strabismus of the highest degree can be corrected by operation on one eye alone if desired.

DISCUSSION.

DR. G. C. SAVAGE, Nashville, Tenn.—My operation differs from Dr. Todd's in several respects, one being that there is less trauma in mine. Dr. Todd's operation is a combination of my tucking operation and the Laglieze lapping advancement operation. These three operations are the only ones that should be done for giving added power to a muscle. In neither of these operations is the tendon of the muscle severed. Again I wish to be recorded as saying that no rectus muscle should ever be cut entirely loose from the globe, either for setting back its attachment or as a preliminary for advancing it. It would frighten me if I were to cut a tendon entirely across. My muscle shortening operation can be done with the aid of the Todd tucker, or the Tenney or Valk folder, but I prefer to use two large strabismus hooks. The technic of my operation is simple and the traumatism is slight. I make a cut near to, and parallel with, a border (lower if the muscle is an externus or an internus) of the muscle, through the conjunctiva and capsule. Through this incision I pass one of the large hooks beneath the tendon, carrying it forward to the insertion. Lifting the tendon with this hook, I pass one of the two needles (the suture is armed with two needles) through the incision and make it penetrate the tendon near its upper border and at its insertion, and pass it on through capsule and conjunctiva. An assistant then inserts the second hook and carries it back beneath the belly of the muscle as far as possible and now slightly raises the muscle. Still holding the first hook, I now pass the second needle through the incision to a point of the muscle similarly related to the muscle plane with the point of puncture of first needle, and at such a distance behind the attachment as may be judged necessary; the needle is now pushed through muscle, capsule and conjunctiva and the part of the suture under the muscle is drawn into position parallel with it. The same needle is now passed through the conjunctiva, capsule and muscle near its lower border, immediately beneath the second puncture, and is brought out through the cut. The thread is now drawn on until the loop rests against the conjunctiva. The second hook is now removed and I now pass the same needle through the incision, beneath the tendon, and push it through the tendon near its lower border and at its insertion, and on through capsule and conjunctiva, being careful that the third and fourth punctures are in a plane parallel with the rotation plane of the muscle. I now pass the two needles through the two holes in the suture plate and complete the operation by tying a surgeon's knot on the silver plate; and in doing so I draw that part of the muscle beneath the loop into contact with the tendon at its insertion, thus shortening the muscle to that extent. It is a simple operation, easily done and efficient. The muscle capsule and conjunctiva are all included in the stitch. The knuckle of tissue thus formed needs no stitch to flatten it, for it soon disappears by absorption. This suture needs no anchoring sutures to strengthen it.

A mistake made in this operation and in other operations requiring a stitch is in allowing the suture to remain in too long. The stitch should be removed on the fifth day, even a day earlier if there is too much irritation excited by its presence. I always use silk. In the Laglieze operation the conjunctiva is incised over the tendon and turned back. A strabismus hook is passed beneath the tendon for the purpose of lifting it, when one needle of the double-armed suture is passed through the muscle after the manner of sewing on goods, thus placing a loop of thread beneath the belly of the muscle. Each of the two needles is now passed into the scleral tissue just as far in advance of the insertion of the tendon as the loop already taken is behind the insertion. The scleral punctures must be related, ordinarily, to the plane of rotation as are the puncture and counter-puncture in the muscle. In tying the surgeon's knot that part of the tendon and muscle between the insertion and the loop is drawn over the insertion to the scleral stitches, and is kept flat against the globe. This done, the conjunctival wound is closed by one or more sutures. The scleral stitch should be taken parallel with the canal of Schlemm, and behind it.

It is now clear that the operation shown on the manikin by Dr. Todd is a combination, with some modifications, of my muscle-shortening operation and the Laglieze lapping attachment operation. My objection to the tucker shown by Dr. Todd is that, if one wishes to change the plane of rotation of the muscle to cure a complicating cyclophoria it would be hard to accomplish, whereas it is easily done when the strabismus hooks are used. The Todd operation is a good one, the chief objection being the amount of trauma inflicted. More effect can be gotten from the Laglieze operation than from mine or Todd's.

DR. WENDELL REBER, Philadelphia—I am compelled to say that I do not think advancement is an easy operation. One must be doing a great many of them to make it at all easy. All the gentlemen with whom I have talked would rather do any other operation than an advancement. Tenotomy is easy; as to the result one gets, that is different. Whether a muscle is or is not to be cut away from its attachment depends on whether we aim at cosmetic effect or binocular vision; if for cosmetic effect it does not make any difference. It is generally done for that purpose and binocular vision is not a frequent result. That operation which enables us most clearly to see what we are doing seems to me the most commendable. The Worth operation is one to be carefully considered. I find it comparatively easy to do, and the effect secured at the operation is not lost. I confess that Dr. Todd's operation has one element to make it desirable and that is the ease with which the effect can be regulated after the anesthesia has worn off. When Dr. Todd brought out his first tucker I used it in three or four cases, and while we were not enthusiastic about it, we thought that perhaps we had not used it enough to become proficient; I felt that the tucker was in the way all the time and that the effect was likely to be a temporary one. All the sutures should be fast so that the operation may be made more definite. I think the Worth operation is to be preferred; the reaction is slight and the effect is permanent.

DR. L. WEBSTER FOX, Philadelphia—I had the pleasure of having Dr. Todd demonstrate his tucker operation in my clinic last Monday. I had attempted the operation several times, but the result was not satisfactory. Dr. Todd explained to me that the instrument I was using was not made correctly. I failed to bring about a good result by an improperly made instrument, so that it is not fair to condemn an operation until you have seen the surgeon who devised it, use the instru-

ment himself. Dr. Todd performed the operation in my clinic very successfully, even with the very inferior instrument in my possession.

DR. OSCAR WILKINSON, Washington—I have been with Dr. Worth in a great many of his operations and have watched the results, and in my own practice no other advancement operation has given such good results. The operation depends largely, of course, on the object we wish to obtain and the amount of defect to be corrected. Where there is a large defect I should be skeptical as to the results of the tucking operation. It may be very valuable where the defect is slight, and it is certainly an ingenious idea.

DR. MARK D. STEVENSON, Akron, Ohio—I make a long, vertically curved incision through the conjunctiva, the center nearly touching the limbus, the ends curving away from the cornea. Tenon's capsule is next opened and the conjunctiva and capsule being pushed well back the muscle is seized by my advancement forceps and then cut free from the sclera. A sharp needle on a silk suture is next passed from without inward through the junction of the upper and middle third of the tendon and is then passed outward through the upper margin of tendon, and again passed through the tendon just behind the first point of entrance. It is then carried near the edge of the cornea and passed deep through episcleral tissue into the sclera. The needle on the other end of the suture is likewise used on the lower portion of the tendon and the two being first tied in a single knot, are tightened until effect required is secured, when a surgeon's knot may be made. All superfluous tissue should be removed. By this suture the upper and lower portions of the tendon are securely held, while the middle portion also affords support by the cross piece of the suture. The circulation in the middle portion is not interrupted, however, and only one knot is necessary.

DR. JOHN E. WEEKS, New York City—Any operation that necessitates doubling the tendon or muscle into a cord is certainly theoretically imperfect. The operation of Dr. Savage is such an operation. That difficulty has been avoided to some extent by the last speaker. The ideal operation is one that will maintain the normal width of the tendon, in addition to accomplishing the result desired. In order to maintain the width of the tendon, sutures must be entered at the upper and lower borders of the tendon. If only two sutures are used the middle portion can not be fastened as it should be, but with three sutures the width of the tendon can be controlled perfectly. My experience has led me to the conclusion that deviation of the muscle in any way imperils the result of the operation. For some years I used the advancement by tucking as devised by de Wecker, with very good results. One can not tell by half a millimeter the amount of the effect that will be produced by any operation. Another thing that is detrimental is the strangling of a portion of the tendon. That is done when the middle or the sides of the tendon are tied. It can be avoided by quilting the sutures. It is important to go well into the scleral tissue in passing the bulbar sutures. Another thing, do not delude yourselves in believing that a sufficient plastic process will be set up in four or five days to retain the advanced muscle. It ordinarily requires a longer time. Leave the sutures in from seven to ten days in order to be assured of the permanent retention of the tendon in the position in which it is placed at the time of operation.

DR. W. E. LAMBERT, New York City—I should like to substantiate what Dr. Weeks has just said. I am not an advocate of the tucking operation. I find advancements, or resections and tenotomies perfectly satisfactory.

DR. J. L. BORSCH, Philadelphia—Dr. Todd in his paper says that he can overcome a secondary strabismus by tucking the muscle that allowed the eye to deviate. The tendon, in a secondary strabismus, is so retracted that in most cases it can hardly be found; and what is advanced is the capsule, and the eye is thus straightened. It has been my privilege to assist de Wecker in many operations for capsular advancement, and have performed many myself, and fail to understand why an operation so simple and so effective should be modified. The manner of placing the sutures, it has been said, prevents their slipping; if the sutures are of the proper kind this will not occur. Dr. Todd assures, you can regulate the effect exactly with his method. This can also be done by grasping the capsule in the broad forceps, but in the majority of operations one must overcorrect a few degrees for a day or two. As for judging the amount of deviation corrected, I wish to say, that by using the de Wecker strabometer, which is extremely simple and portable, you can measure the exact deviation of the eyes and regulate the operation accordingly. I venture to say that the fraternity who do many operations will bear me out in the statement that we must simplify and not complicate operations in ocular surgery. For myself I am not ready to abandon the de Wecker operation.

DR. F. C. TODD—The great number of operations that have been described is evidence that we are not satisfied with what has been done so far in this work. As to Dr. Savage's criticism that torsion could not be effected by my operation, I would say that that is one of the advantages of the use of the instrument; the torsion can be easily regulated. In the second case I operated on I was obliged to produce torsion. By changing the axis of the instrument and inserting the scleral sutures above or below, as the case may be, the desired effect may be readily produced. Of course, the idea of the ligatures above and below is to prevent the cutting of the suture along the fibers of the tendon, which takes place in many of these operations and, as it seems to me, would take place in Dr. Savage's operation. I would remind Dr. Weeks that while he cuts off that portion of the tendon I ligate it, and I san not see that it makes any difference whether it is removed by atrophy or cutting; the results are the same; we do not care to preserve that portion of the tendon. Another advantage of this method is that the flap lies down and makes a smaller lump, which later disappears. In regard to the administration of chloroform, in these cases I rarely use chloroform; I prefer not to. As to the matter of pain, of course, many of these operations are somewhat painful, but that depends largely on the pulling of the muscle. With this instrument the pull is gradual and steady, while the pain is caused mostly by jerking the muscle. Now someone has spoken of doing a tenotomy. Each case must be treated on its merits. I would suggest that where one eye is involved it might be wise to do a tenotomy and an advancement, but where you have an alternating strabismus or where the movement of the two eyes is about equal we might desire to do two advancement operations.

THE PASSAGE OF DIFFERENT FOODSTUFFS FROM THE STOMACH.*

WALTER B. CANNON.

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BOSTON.

In the transfer of food from the stomach to the intestine two factors are concerned, the gastric waves of peristalsis and the pyloric sphincter. It is now known that under normal conditions the peristaltic waves course from the middle of the stomach to the pylorus without interruption during the whole of a digestive period. How the waves will affect the food is determined by the action of the pylorus. If the pylorus remains closed, the repeated waves over and over again churn the food with the gastric secretions; if the pylorus opens, these same waves act as the motive power to force the food onward.

The determinative function of the pylorus was recognized by the fathers of medicine, for they gave the ancient terms *pylorus* (keeper of the gate), *rector* and *janitor* to the sphincter, and assumed that it possessed a "will" which fixed the fate of ingested food. Van Helmont, in the days when the learned confused mysticism with science, presented his reasons for believing that the pylorus was the seat of the soul. It is certain that this

*Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pathology and Physiology.

wonderful sphincter holds the chances for good and evil in many of the most essential processes of digestion. The retention of food in the stomach to undergo gastric digestion, the gradual delivery of food from the gastric reservoir into the region of intestinal digestion, so gradual that the important digestive processes near the pancreas shall proceed regularly and without disturbance; the checking of irritants in their onward passage through the alimentary canal—all these functions are in the control of the pyloric sphincter.

Differing views of the way in which the pylorus opens and permits the food to pass have been set forth. Oppenheimer,[1] in 1889, and Rossbach,[2] in the next year, declared the food was all thoroughly mixed with the gastric juice, and that only four hours or more after eating did the sphincter relax and allow the stomach to empty. These observations, however, have not been substantiated; the errors in them probably were due to the nature of the method employed, for both clinical findings with the stomach tube, as Ewald and Boas[3] have demonstrated, and studies with the *x*-rays on the undisturbed subject,[4] prove that the stomach is not emptied all at once at the end of gastric digestion, but progressively during the period. In an investigation of the passage of food from the stomach we have, therefore, to consider agencies maintaining an intermittent closure of the pylorus, agencies which usually keep the channel closed, yet occasionally open it to permit portions of the digested food to advance.

Both mechanical and chemical agents have been supposed to determine the emptying of the stomach. Rossbach,[2] for example, thought that the stomach emptied only at the completion of gastric digestion, because the muscular contractions at that time were (under the conditions of his observations) more intense than before. Penzoldt,[5] after an extensive study of the periods during which various foods remain in the stomach, noted that such foods as delayed the appearance of free hydrochloric acid remained longest in the stomach. Verhaegen,[6] on the other hand, declared that it mattered little in the passage through the pylorus whether the food was acid or neutral. In criticism of these statements, it may be said that Rossbach's observations were made on morphinized animals, with opened abdomen, conditions known to disturb the normal activities of the digestive tract; and in Penzoldt's[5] studies, although the amounts of food are stated, no attempt was made to have these amounts uniform, or to have the food of the same consistency. Furthermore, Penzoldt was dependent on securing remnants of the food by means of the stomach tube, a procedure which furnished no data concerning the rate at which the stomach was emptied, and was also objectionable in interfering with the digestive processes. This method, moreover, leaves the investigator in doubt as to which of the factors, the gastric peristalsis or the pylorus, caused the retardation of the food. Verhaegen's[6] conclusions are based on observations with the stomach tube on only four individuals, two of whom were admittedly pathologic. In the presence of strong evidence against his conclusions, the small number of cases observed by him must furnish him inadequate support.

Because of the differences of opinion which the above discussion has shown to exist, and because of the importance which the passage of food from the stomach bears both to physiology and to practical medicine, further investigation of the factors concerned in the process is desirable.

1. Oppenheimer: Deutsche med. Wochenschrift, 1889, xv, p. 125.
2. Rossbach: Deutsches Archiv für klin. Medicin, 1890, xlvi, pp. 296, 317.
3. Ewald and Boas: Virchow's Archiv, 1885, ci, p. 364.
4. Cannon: American Journal of Physiology, 1898, i, pp. 368, 369, 378.
5. Penzoldt: Deutsches Archiv für klin. Medicin, 1893, ll, p. 545.
6. Verhaegen: La Cellule, 1897, xiv, p. 33.

THE METHOD OF INVESTIGATION.

In studying the agencies controlling the pyloric passage, it is well, for the sake of simplicity of conditions, to employ foods predominantly proteid, fat or carbohydrate. Such foods were used in this investigation. Boiled beef, free from fat, boiled whitefish and the white meat of fowl are examples of proteids which were fed; beef suet, mutton and pork fat are representatives of the fats; starch paste, rice, and potatoes, of the carbohydrates. In all cases full-grown cats, deprived of food for the twenty-four or thirty hours previous to the experiment, served for the observations. The food was invariably given in uniform amount, 25 cubic centimeters, and with uniform consistency, the consistency of thick mush. Before the food was given to the animals it was mixed with 5 grams of subnitrate of bismuth. Comparison of subnitrate of bismuth with other insoluble heavy salts has shown that it has no peculiar effects on the movements of the alimentary canal; and clinical studies by Schüle[7] have proved that the addition of subnitrate of bismuth to food does not interfere with gastric motility. The animal thus fed with food mixed with bismuth subnitrate was exposed to the *x*-rays, and the movements of the food in the stomach and small intestine observed by means of the shadows cast on a fluorescent screen. The observations were recorded at regular intervals, one-half hour, one hour, and every hour thereafter for seven hours following the feeding. The records consisted of outlines of the shadows of the food, traced on transparent tissue paper laid over the fluorescent surface. Inasmuch as the diameter of the intestines varies only slightly, the area of cross-section of the contents may be disregarded, and the aggregate length of the shadows of the food in the small intestine may be taken to indicate the amount present. By comparing the aggregate lengths of the shadows cast by the intestinal contents it is possible to know the relative amounts of food in the intestine at different times as well as the relative amounts of different foods present in the intestines of different animals at the same time after eating.

It is obvious that the method has defects. For example, loops of intestine are not always parallel to the screen, and the loops not parallel may not always form the same angles with the screen, and they would, therefore, be variously foreshortened. It may be said in answer to this objection that the animals were stretched on their backs and the abdominal wall flattened both by the stretching and by the pressure of the fluorescent screen, so that the loops must lie nearly parallel to the screen, except, possibly, at short dorsoventral turns from one loop to another. That these turns were not a serious source of error was proved by massage of the abdomen, which rearranged the coils; tracings made before and after such treatment showed only slight variations in the aggregate length of the shadows. Another possible defect of the method arises from such overlapping of the loops that two loops, or parts of two loops, cast a single shadow. Care was always taken to obviate this error by separating by pressure with the finger loops lying close together. Still further faults of the method are found in the variations in the thickness of the food masses in the intestine, and the changes due to absorption, which proceeds at different rates with the different foods. But

7. Schüle: Zeitschrift für klin. Medicin, 1895, xxviii, 6, 500.

these defects must be regarded as slight, especially in the early stages of intestinal digestion, when compared with the great and characteristic differences in the amounts of food present in the intestine when carbohydrates, fats and proteids are separately fed.

What these differences in the treatment of the three kinds of foodstuffs by the stomach are, will now be stated. The results here set forth are based on between 600 and 700 observations on 80 to 90 cases.

RESULTS.

The characteristic differences in the aggregate length (in centimeters) of the intestinal content with the various foodstuffs at definite times after eating are illustrated by the following average figures:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Fats (15 cases)	5	9	14	17	16	13	13	9
Proteids (10 cases)	1	5	18	21	23	19	17	14
Carbohydrates (14 cases)	8	30	39	33	25	19	14	6

Note that the carbohydrates and fats both begin leaving the stomach soon after they are ingested; but the carbohydrates leave rapidly, while the fats leave slowly. The curve representing the carbohydrate rapidity of passage would have a quick rise to a high maximum at the end of two hours, then a slow drop; the curve for fats would be a long, low curve, with no prominent maximum point. The figures for proteids are of especial interest, for they show that the proteids begin to pass out much later than either carbohydrates or fats (in many cases of proteid-feeding nothing left the stomach during the first half hour, and frequently nothing was out at the end of an hour, though peristaltic waves were running regularly from the beginning), and, moreover, after the proteids begin to leave the stomach, they leave slowly. The curve for proteids would show a slow rise to a maximum at the end of four hours, and then a gradual fall.

Many confirmations of these figures have been secured. For example, when proteids are fed first and carbohydrates later, the proteids are pressed more into the pyloric while the carbohydrates lie more in the cardiac end of the stomach. Under these circumstances, the presence of the proteids near the pylorus delays the discharge of the carbohydrates, as the following comparison of average figures in two such cases with the average proteid figures will clearly show:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Proteids (10 cases)	1	5	18	21	23	19	17	14
Proteid first, carbohydrate second	2	6	15	21	29	34	28	22

On the other hand, when carbohydrates are fed first and proteids second, the presence of the proteids in the cardiac end of the stomach does not materially check the exit of the carbohydrates. A comparison of average figures in two such cases with the average carbohydrate figures will make this relation clear:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Carbohydrates (14 cases)	8	30	39	33	25	19	14	6
Carbohydrates first, proteids second	4	23	35	28	25	18	14	7

The most significant feature of the above tables is undoubtedly the remarkable difference between the figures for carbohydrates and for proteids. Why are the carbohydrates, which are not digested by the gastric juices, permitted to go quickly onward into the intestines, where they are digested, while the proteids, digested in the stomach, are retained there to undergo digestion? What fine mechanism of the digestive economy could see to it that the gastric part performs its function well when food it acts on is present, and lets it waste but little time or energy with food it can not change? Such apparently purposive functioning recalls the ancient attribution of a "will" to the pylorus, supposed to control the movements of material through the channel with deference to the body's welfare. Is there, however, a more simple and direct explanation of these activities?

If the presence of free acid in the stomach and near the pylorus is a stimulus to the relaxation of the pyloric sphincter, the interesting mechanism is largely explained. Both carbohydrate food and proteid stimulate the gastric secretion in abundance, as researches on dogs by Pawlow and his pupils,[8] and as clinical studies on man, have shown.

Now, inasmuch as carbohydrates provoke an acid secretion and do not unite chemically with it, free acid is at once present in the stomach; whereas with proteids, since they join with the acid secretion to form acid proteids, free acid does not make its appearance for some time. Thus the carbohydrates would begin almost immediately to pass through the pylorus. Thus proteids would be delayed.

The hypothesis that the presence of free acid in the stomach opens the pylorus can be tested. Feeding a carbohydrate mixed with an alkaline fluid would delay the appearance of free acid in the stomach, and, according to hypothesis, should also delay the passage of the food. The similarity between the average figures from two cases fed on crackers moistened with 1 per cent. sodium bicarbonate, and the average figures for proteid, shows how closely the addition of the alkaline fluid makes the figures approximate.

Hours after feeding.	0-½	1	2	3	4	5	6	7
Proteids (10 cases)	1	5	18	21	23	19	17	14
Alkaline carbohydrate	0	4.5	19	28	31	29	25	21

The converse of this process also was tried. Proteids changed to acid proteids, and freed from all excess of acid were fed and the rate of discharge recorded. The following average figures of three cases of acid proteid (lean beef acid with hydrochloric acid), compared with the average figures for carbohydrates, show a remarkably close relation throughout:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Carbohydrates (14 cases)	8	30	39	33	25	19	14	6
Acid proteid	6	30	43	39	28	21	14	10

These two tables show that alkaline carbohydrate, like ordinary proteid, leaves the stomach slowly, while acid proteid leaves the stomach quite as rapidly as carbohydrate food. All cases which have been tested harmonize with the idea that conditions delaying the appearance of free acid in the stomach delay the discharge of the food, and conditions favoring its appearance hasten the discharge.

At first thought it might seem that acid added to carbohydrate food would still further increase the rapidity of the discharge. Such, however, is not the fact. When 0.4 per cent. hydrochloric acid is added to crackers in sufficient quantity to make a thick mush, the figures secured do not vary much from those secured when crackers and water are fed:

Hours after feeding.	0-½	1	2	3	4	5	6	7
Crackers and water	10	23	43	46	43	30	19	5
Crackers and 0.4 per cent. HCl	8	18	41	51	45	25	21	17

But if free acid is the stimulus to the opening of the pylorus, why does not the addition of free acid to the food open the pylorus and hasten the emptying of the stomach? How is the paradox to be explained? It is here that the reflexes from the duodenum must be considered.

In 1893 Hirsch[9] observed that the introduction of acid into the duodenum through a duodenal fistula inhibited for a time the passage of food by the opening. Serdju-

8. Pawlow: The Work of the Digestive Glands, English translation, London, 1902, p. 35.

9. Hirsch. Centralblatt für klin. Medicin, 1893, xiv, p. 73.

kow,[10] one of Pawlow's students, confirmed the work of Hirsch. It was impossible to tell by the methods these investigators employed whether the acid in the duodenum checked the gastric peristalsis, or compelled a prolonged contraction of the pyloric sphincter. Observations with the *x*-rays show that, although there is no cessation of gastric peristalsis after the advance of acid food into the duodenum, the pylorus does not for some moments relax. The duodenal reflex of Hirsch and Serdjukow must, therefore, affect the pyloric sphincter.

It is now possible to explain the slow passage of fats from the stomach. Fats are unlike either proteids or carbohydrates in that they are seldom eaten as a pure, or even predominant, foodstuff. When fats in almost pure form are fed to animals the gastric peristalsis is often observed to be slight, and, according to Pawlow, the flow of gastric juice is not stimulated. When fats enter the duodenum, however, they cause the same reflex that acid causes.[11] Thus, by a diminution of the influence opening the pylorus, and by a continuance of the influence closing it, the fats are long retained in the stomach, and only slowly passed along.

THEORY OF THE ACTION OF THE PYLORUS.

Evidence has been presented in the foregoing paragraphs which would explain the remarkable activities of the pylorus in the presence of food as largely due to chemical stimulation. The degree of contraction of the pyloric sphincter when at rest varies,[12] but the effect of particles of food in keeping the sphincter contracted[4] indicates that the mere mechanical presence of food in the stomach will produce a closure of the pylorus. After food has reached the stomach all evidence points to the probability that the signal for a movement onward into the intestine is the appearance of free acid. Free acid on the stomach side of the pylorus would thus be the stimulus to open the pylorus and initiate the chemical control of the sphincter. The opening of the pylorus permits the exit of a portion of the acid chyme. There is proof that acid in the duodenum closes the pylorus and keeps it closed. Thus the acid chyme would go forth from the stomach, and, with its acid, close the gate behind it. But acid in the duodenum is known to be the stimulus for the flow of the alkaline secretions of the pancreas.[13] No inorganic acid is normally present beyond the first few inches of the small intestine.[14] The acid, therefore, is here neutralized. As the neutralizing of the acid proceeds the stimulus to the closure of the pylorus is weakened, until the acid in the stomach can again open the pylorus. Again the food would pass out and the gate close till the duodenal changes finish their slower course.

Thus, automatically, carbohydrates, on which the stomach works no change, would go early and quickly into the intestine, where they meet their proper ferment; thus, automatically, proteids would be retained in the stomach to suffer alteration by the gastric juice, and only after such alteration be permitted to go on; thus, automatically, the intestine would be saved from oppression by overwhelming discharges from the gastric reservoir; and, by this same automatic mechanism, the gastric secretion, harmful to the action of the intestinal ferments, is rendered innocuous because of its admission, little by little, into the duodenum.

10. Serdjukow: Reviewed in Hermann's Jahrsbericht über die Fortschritte der Physiologie, 1899, viii, p. 214.
11. Lintwarew: Biochemisches Centralblatt, 1903, i, p. 96.
12. Oser: Zeitschift für klin. Medicin, 1892, xx, p. 285.
13. Dolinsky: Archives des sciences biologique de St. Pétersbourg, 1895, iii, p. 399.
14. Moore and Rockwood: Journal of Physiology, 1897, xxi, p. 373.

DISCUSSION.

DR. WINFIELD S. HALL, Chicago—I will note in a few words the relation between Dr. Cannon's findings and something that I have discovered in my experiments in dietetics in my department, namely: Patients with acute gastritis can take with comfort egg lemonade earlier than they can take any other form of food, and it is our custom to give that at the beginning of feeding after they have had the period of rest that Nature is calling for in an acute case of gastritis. The earliest food that we can give is very small doses of egg lemonade every two hours. Dr. Cannon's discoveries regarding the influence of acid make it evident that this egg lemonade, being in the condition of acid albumin and already half digested, passes readily right on through the stomach, without exciting or irritating it, and down into the duodenum, where its digestion is completed.

DR. CHARLES HARRINGTON, Boston—Did the gluten curve take that form on account of the presence of carbohydrates, which are commonly found in large amounts in commercial glutens?

DR. D. H. BERGEY, Philadelphia—How does Dr. Cannon account for the prolonged time of absorption from the stomach? Our usual idea has been, I think, that food passes from the stomach in a much shorter time than his curves indicate. Does he believe that the food really remains in the stomach for that length of time, or is it due to the shadows cast by the subnitrate of bismuth remaining on the mucous membrane?

DR. FENTON B. TURCK, Chicago—One interesting point that Dr. Cannon has brought out here is that the presence of acid or alkali does not materially influence the peristaltic motion and that the chemical composition of the food does not influence the motions of the stomach. The peristaltic waves he found extending over to the pylorus were independent of the character of the stomach contents. In this difference between starch and proteid, the more rapid passage of the starch was not due to increased peristaltic waves caused by carbohydrates, nor to lessened peristaltic waves influenced by diminished stimulatory action of the proteid on the muscle fibers of the gastric wall, but to difference in the opening or closure of the pylorus. This somewhat corresponds with my own observations, published last year, on the influence of various chemical bodies on the gastric mucosa. To the entire mucosa were applied various chemical bodies—acids, alkalies, varieties of food, such as bouillon, peptones, starch—and they did not seem to influence the peristaltic motions a particle; but as soon as tension was brought to bear on the muscle wall of the stomach by distending the stomach with air or water, introduced directly, or indirectly in a rubber bag inserted in the stomach, it promptly caused rhythmical contractions—peristaltic waves. The degree of tension or intermittent tension, within limits, increased these peristaltic waves proportionally. By prolonged and excessive tension, lasting several hours, the gastric muscle of the dog became fatigued and resulted in dilatation of the stomach. I also observed, as Dr. Cannon has done, the influence of acid on the mucosa of the stomach and duodenum, causing the opening and closing of the pyloric door; and this work that Dr. Cannon has brought out in another direction not only confirms my observation of the negative effect of chemical stimulation or excitation of stomach movements, but goes further and gives an explanation of the manner in which the pyloric door is opened. Does this, then, conflict with the popular theoretical idea that excessive acid in the stomach causes spasm and a closure of the pylorus, as is held by clinicians? I am impressed more with the physical and mechanical effect of the stomach contents in causing rhythmical contractions, which necessarily includes relaxation as well as contraction. The acidity may be an incident indirectly influencing the passage of food through the pylorus.

DR. CLAUDE A. SMITH, Atlanta, Ga.—Has Dr. Cannon made any observations on the effect of exercise on the passage of these different foods from the stomach?

DR. W. B. CANNON—In order to find the reason for gluten leaving the stomach early and in large amounts, just as carbohydrates do, I took equal amounts of gluten paste and of the proteid (meat proteid) which I had been using, and put into each the same amount of 0.4 per cent. hydrochloric acid. In about thirty minutes the free hydrochloric acid had entirely disappeared from the meat, but the free hydrochloric acid was still present in the gluten paste twenty hours after being introduced. Evidently this gluten does not readily unite with the acid; so that, if acid is poured out on the gluten in the stomach, free acid must be present immediately, just as it is in the case of carbohydrates. I used Dr. Johnson's gluten, and I understand that a large amount of starch is present in it. The figures I have presented do not show the amount of food in the stomach. The figures show the amount of food in the small intestine. The stomach may be empty while food is still present in the small intestine. It is true, as Dr. Turck has suggested, that I have seen no considerable variation in the peristalsis. Gastric peristalsis runs regularly from the beginning to the end of digestion unless stopped by emotional disturbances. I have not examined the effect of exercise, but one of my students is at the present time at work on the effect of exercise and other factors.

THE DIAGNOSIS OF ENLARGED BRONCHIAL LYMPH NODES.*

ALFRED FRIEDLANDER, M.D.,
CINCINNATI.

Among the phenomena of the developmental period of childhood, there is none more striking perhaps, than the activity for the lymphatic system. The lymph glands constitute an apparatus for filtration. Given the factors of rapid growth, on the one hand, and of poorly developed powers of resistance, on the other, and it can readily be seen that the period of childhood must necessarily be accompanied by marked reactive irritation and inflammation of the entire glandular system. During this period the mucous membranes are prone to irritation, with resulting inflammation. Added to this, there is the disposition, often hereditary, not infrequently aggravated by faulty conditions of development and hygiene, to chronic inflammation of mucous membrane, skin and bone. Under such conditions it is not surprising that the filter system should be taxed to its utmost capacity—hardly less astonishing that we should find very often, in the inability of this system to hold the various poisons localized—an avenue for general systemic infection.

From the nature of things we should expect to find inflammation of the tracheobronchial glands to be enormously common. The three groups of these glands—the tracheal, the tracheobronchial and the peribronchial intercommunicate freely. They receive the lymphatics of the trachea, the bronchi and the lungs and the pleuræ. But, more than this, through the deep lymphatics of the neck, lying both in front of and behind the carotid sheath, they are in direct communication with the cervical glands. Again, these glands are directly connected with the mesenteric lymph nodes.

It will thus be apparent that very many different factors and very diverse conditions may induce inflammation of these glands. Of these factors there are many that are particularly frequent in childhood. Diseases of the nasopharynx and irritation of the bronchial mucosa are excessively common. Indeed, if we consider the morbidity of but two diseases, which invariably cause a good deal of irritation of the bronchial mucosa and thus of the bronchial glands, namely, measles and pertussis, the frequency of the condition can not be doubted.

SIMPLE ADENITIS.

Simple adenitis of these glands is very frequently only the precursor of the far more serious tubercular involvement. There is no need to quote many figures as to the frequency of such tubercular infection. As long ago as 1865 Steiner and Neuritter showed that in 302 autopsies in tuberculous children, the bronchial lymph nodes were affected 275 times (91 per cent.). And the oft-quoted figures of Northrup, who found the nodes tubercular in every case, in a series of 125 autopsies, irrespective of the cause of death, hardly need comment. It is not only true that tubercular bronchial adenitis is present in at least four-fifths of all cases of tuberculosis in children, but—and this is the more important—it is certain that in the majority of these cases, it is the primary lesion.

There can be no doubt that many cases of enlarged bronchial glands tend to recovery, without subsequent tubercular infection. The danger of such infection, however, is always present, and it is, after all, this factor which adds so greatly to the gravity of the condition.

If we consider that the morbidity of measles is probably greater than that of any other infectious disease; if we add to this the enormous frequency of pertussis, influenza and of such forms of irritation as adenoid vegetations, the statement that almost every child, at some time or other, exhibits a bronchial adenitis, does not seem exaggerated. Of course, in many cases, such a simple adenitis recedes with the disappearance of its cause. With the subsidence of the special infection, the strong and otherwise healthy child recovers, and is to all intents perfectly well again. Yet every adenitis of this sort is but a preparation of the soil whereon, under proper condition of diminished vitality and lowered bodily resistance, the ubiquitous tubercle bacillus may grow and flourish. And other things being equal, the longer such adenitis persists, the greater the danger of tubercular infiltration.

TUBERCULAR ADENITIS.

Yet, even though it be admitted that tubercular disease of these glands is enormously common, it is not to be forgotten that this form of tuberculosis—so long as it remains localized—is still decidedly amenable to treatment. Indeed, tuberculosis, in infancy and childhood, is essentially a disease of lymphatic structures. It may remain so localized for months and years, gradually progressing to other and more incurable forms. There is, it is true, the ever-present danger of general infection; and owing to the anatomic peculiarities, to the peculiarly intimate relation of these glands to other lymphatic systems, such infection is particularly apt to occur in the form under consideration, namely, enlargement of the bronchial glands. A recent writer insists on "the predominating influence of the tracheobronchial glands, as compared with any other lymph glands, in the origination of tubercular processes elsewhere in the body."

DIAGNOSIS OF ENLARGED BRONCHIAL GLANDS.

From the viewpoint of prophylaxis, as well as of direct therapy, it is thus very desirable that we should be able to make a definite diagnosis of enlargement

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of these bronchial lymph nodes. Unfortunately, this is often quite impossible. Indeed, the view is not infrequently expressed by men of wide clinical experience that the diagnosis of enlarged bronchial glands *per se* can not be made during life.

Thus an observer as keen as Henoch doubts whether the diagnosis can be made "in the great majority" of cases. And he adds that, at autopsy, he frequently found voluminous pockets of caseous bronchial glands whose existence could not have been inferred from a single symptom during life. It must be remembered, however, that this was written fourteen years ago.

Yet there are several symptoms—in some cases even definite physical signs—whose presence justifies the making of a diagnosis on the grounds of probability, and this is a condition where we must often rest content with such a diagnosis, where, to use the apt phrase of a well-known Vienna clinician, we must be satisfied with a diagnosis made not with mathematical certainty, but on overwhelming probability. Even admitting the necessary uncertainty of diagnosis, it is worth while to study the condition most carefully. For, on the one hand, we have indisputable evidence of the postmortem table as to the enormous frequency of the condition, and, on the other, there is hardly a phase of the whole question of tuberculosis in childhood where therapeutic inquiry offers more favorable promise.

SYMPTOMS AND PHYSICAL SIGNS.

One of the early symptoms suggestive of enlarged bronchial glands is a peculiar paroxysmal cough. This cough resembles that of pertussis, except that there is no growing inspiration. The paroxysms, often very violent and exhausting, may end in vomiting. The attacks are usually more frequent at night; indeed, there are often nocturnal attacks closely simulating asthma. The sleep is in consequence often restless.

Dyspnea on even slight exertion without demonstrable cardiac lesion, is frequently present. The appetite is capricious, the child is not well nourished and usually anemic, and anemia in children without demonstrable cause is always suspicious. There may or may not be slight afternoon rise of temperature. Hoarseness more or less constant is often noted. The listlessness of the child is often one of the early symptoms noted by the parents.

Physical examination is usually absolutely negative at this time. This symptom-complex is often seen after an attack of measles or whooping-cough, not rarely after influenza, especially in so-called delicate children. It will be remembered that there has been described a pseudopertussis (or pertussoid) after influenza. It is certainly questionable whether this is in reality anything more than an acute condition of enlarged bronchial glands. Very often, however, the symptoms develop gradually, with remissions and exacerbations, but always without demonstrable physical signs until the process is well advanced.

Broadly stated, the physical signs of enlarged bronchial lymph nodes are always those of compression. The bifurcation of the trachea is found opposite the fifth dorsal vertebra posteriorly, and behind the lower end of the manubrium sterni anteriorly. The tracheobronchial glands are thus inclosed within the comparatively unyielding thorax, and in its narrowest part. In the anterior plane of this upper mediastinal space lie the vena cava superior, the innominate veins, the aorta and its branches and the pulmonary arteries and veins.

In the posterior plane are the trachea, esophagus, pneumogastric and recurrent laryngeal nerves and the branches of the sympathetic system. The lymph nodes thus lie in most intimate relation to trachea, bronchi, lungs, vessels and nerves and their enlargement may therefore give rise to a great variety of pressure phenomena. At the same time, it is not to be forgotten that these glands may at times attain enormous size without the production of either symptoms or signs to permit of a definite recognition of the abnormality. With this reservation, we, however, still note certain signs whose presence is at least always suggestive.

Inasmuch as there is direct connection between the tracheobronchial glands and the cervical glands, we should expect to find some enlargement of the latter in disease of the former. As a matter of fact, a certain type of cervical adenitis is suspicious. Whenever we find that the supraclavicular glands are larger than the cervical glands higher up (without local cause for such inflammation), we have a diagnostic point of importance. Naturally, when the tracheobronchial glands are primarily affected, the intensity of the adenitis in the neighboring lymphatics is greatest in the ganglia nearest the tracheobronchial nodes themselves. The cervical nodes higher up in the neck show less involvement than those nearer the sternum. In line with this is Hoffman's observation, that in these cases enlarged lymph nodes may often be felt in the jugular region if the head be bent forward.

Percussion.—There is much diversity of opinion with reference to the value of the percussion find in these cases. There appears to be a consensus of opinion, however, that dullness on percussion over the sternum, behind the manubrium and the upper part of the gladiolus and extending laterally on either side of the bone, is a sign of value. It is true that in cases of persistent or enlarged thymus there may be dullness over the sternum. But this dullness does not extend, as a rule, beyond the margins of the bone laterally. Unfortunately, on account of the covering lungs, with a resonant percussion note, dullness is not always easy to elicit, even where the glands are distinctly enlarged. Some authorities insist that an interscapular dullness may be made out in these cases, by careful percussion. But the amount of overlying lung tissue is, of course, even greater here than in front, so that absence of dullness on percussion here could not negate the diagnosis. Hoffman, who rather doubts the diagnosis by percussion front or back, insists that by palpatory percussion one may feel the increased resistance. But, as Hall points out, more depends on the size of the mass of the diseased glands than on all other factors in their detection by percussion.

Auscultation.—Auscultation often gives valuable information. Voelker calls attention to the value of unilateral alteration in the breath sounds. In children, of course, the respiratory murmur in the interscapular region may be very greatly exaggerated, especially, owing to the anatomic relations, on the right side. Roughened breathing on the right side must, therefore, be taken cautiously. Nevertheless, Widerhofer emphasizes the importance of any great increase in the difference between the two sides. Bronchovesicular breathing on the left side, with prolonged and very harsh expiration, is always suggestive. With extreme compression of one of the primary bronchi the respiratory murmur may be much diminished or quite inaudible on the affected side.

Marfan mentions the presence of bronchial breathing on the affected side between the spine and angle of the scapula, when the glands surround a bronchus. Wilson finds moist râles and bronchial breathing, the latter being heard further from the root of the lung, the more the glands are diseased. Rilliett and Barthez call attention to the fact that these enlarged glands may at times conduct the tubular breathing to the surface even though there be no consolidation of the intervening lung.

It will be apparent, from the very diversity of opinion as to the percussive and auscultatory phenomena in these cases, that the physical signs are not definitely fixed, so that the diagnosis is often very hard to establish, even in the presence of distinctly suggestive symptoms.

Long ago Eustace Smith noted that if a child with enlarged bronchial nodes bends the head back, so that the eyes look to the ceiling, a venous hum of varying intensity is heard over the manubrium. This murmur gradually disappears as the chin is depressed, being lost before the head returns to the normal position. This murmur is due to the compression of the left innominate vein, between the enlarged glands and the sternum. It can never be produced by an enlarged thymus, because this gland lies in front of the great vessels. Later observation has shown, however, that such a venous hum is heard in some children without any other evidence of disease of the bronchial glands. Moreover, the sign can not be elicited if the gland be bound down by adhesions.

Of course, in very advanced stages of glandular enlargement, other pressure effects may make themselves manifest. Marked distension of the cervical veins, edema of the face, atelectasis of one lung with consequent dilation of the right heart, and all its sequelæ, may occur. Hoarseness or complete aphonia, due to pressure on the recurrent laryngeal nerve, may often be noted. The caseous glands may ulcerate into the surrounding structures, pleura, pericardium, esophagus, or—most often—into the trachea. Cases of gradual asphyxia from the latter cause are common. But in these advanced cases the tuberculous process is usually not limited to the glands proper and the signs and symptoms then present are those of some more generalized form of tuberculosis.

It is clear that often the diagnosis of this most common affection is perforce only a presumptive one. It is certainly desirable that if possible more definite signs be found looking to the diagnosis—at least, on the score of probability in the earlier stages. The desideratum, indeed, would be to find such signs before the stage of very pronounced compression signs, because the results of treatment are naturally best in the incipient cases, certainly in the stages preceding tubercular caseation.

For the past few years, I have been making systematic blood examinations, in a series of cases of this sort. As is well known, enlargement of the bronchial glands is a constant concomitant of pertussis. Guêneau de Mussy even went so far as to advance the hypothesis that whooping cough was due to a specific inflammation of the tracheobronchial glands. In 1898, Meunier reported studies of the blood in 102 cases of whooping cough. He found, as an early and constant factor, lymphocytosis. No matter what the absolute number of whites was—and the white count often ran very high—the lymphocytes were found to be relatively as well as absolutely increased. His observations have been repeatedly confirmed.

Another disease in which enlargement of the bronchial glands is very common is measles. Here there is ordinarily no leucocytosis—in fact often a leucopenia—during the eruptive stage. Later on, in convalescence, there is a constant lymphocytosis. Taken together, these facts are at least significant. In two diseases, both of which have the factor of enlarged bronchial glands in common, the blood is identical in one respect, there is lymphocytosis in both cases. It seemed possible that the lymphocytosis might be brought into relation with the enlarged bronchial glands. Indeed Cabot suggests this explicitly for pertussis, where he says we have "a lymphocytosis due perhaps to stimulation of the bronchial lymph glands."

In any study of blood conditions in childhood, there is one factor which may not be forgotten. And it is this, that the usual type, at this period of life differs very materially from that seen in adult life. Taking merely the question of the relative proportions of the different varieties of white cells, it is to be noted that the percentage of lymphocytes is always higher in early childhood. To a degree, indeed, the differential blood count affords some index as to the development of the child. Thus under certain circumstances, the blood shows a marked tendency to recur to the infantile type, where the lymphocytosis is normally highest. Various acute conditions may also produce a lymphocytosis—abnormal for the special time of life of the child. As Cabot says, "A child of 3, convalescent from a summer diarrhea, may have 50-60 per cent. of lymphocytes—which would be normal for an infant of a few weeks—but for 3 years old is very high." Again it is well known that in certain conditions, such as chlorosis, there is a false lymphocytosis due to absolute decrease of the number of neutrophile cells. In such cases, however, the total number of white cells shows a distinct reduction—there is a true leucopenia.

The number of cases of enlarged bronchial glands, in which I have been able to make systematic examinations of the blood, is too small to permit the deduction of any absolute conclusions. Nevertheless it is noteworthy that every case studied showed a constant lymphocytosis. Thus in one child, a girl of seven, the differential count, made in October, 1903, when the clinical picture of enlarged bronchial glands was very clear, gave the following results:

	Per Cent.
Small lymphocytes	64.4
Large mononuclears	0.4
Polymorphonuclears	32.0
Eosinophiles	2.8

Under treatment this child's condition has improved very decidedly. The cough is not nearly so severe. There has been a gain in weight of seven pounds. Slight dullness still persists in the interscapular space. A recent count gave the following figures:

	Per Cent.
Small lymphocytes	48.8
Large mononuclears	5.6
Polymorphonuclears	44.6
Eosinophiles	0.8

In other words commensurate with the general improvement, there is the change in the blood find.

In another case, a boy of 9, lymphocytosis originally ran up to nearly 60 per cent.—at a time when the picture of the tracheobronchial adenopathy was distinct. Seven months later, when all the symptoms had disappeared, a differential count had the following result:

	Per Cent.
Small lymphocytes	33.2
Large mononuclears	12.4
Polymorphonuclears	43.6
Eosinophiles	16.6

The percentage of lymphocytes is here practically normal, although the eosinophile count is very high—without new demonstrable cause for the eosinophilia. Indeed a subsequent count showed normal proportions of eosinophiles. Without exception, in all of the cases studied, there has been the distinct picture of lymphocytosis—usually very well marked—when the clinical condition allowed a diagnosis of enlarged bronchial glands to be made.

In this connection it may be permissible to refer to the figures of a count, previously reported, of a case of so-called pertussoid, following influenza, in an infant of 8 months. In this case the percentage of lymphocytes was 69.6 per cent. the polymorphonuclears numbering only 30 per cent of the whites. A certain degree of lymphocytosis is, of course, to be expected in infancy, but figures reported in this case are certainly suggestive.

The number of cases studied (10) is not large enough to warrant the drawing of any absolute conclusions. Nevertheless, the fact that each of these cases showed a lymphocytosis, stands out prominently. And its significance is enhanced by the fact that in the cases which could be followed up, the lymphocytosis disappeared, to a degree, with the subsidence of the symptoms.

It is indeed not unreasonable to expect that, where there is marked irritation or inflammation of the lymph glands—we should see a reactive lymphocytosis. The best illustration of this we see in lymphatic leukemia. But this is not an isolated example. Thus in typhoid there is relative lymphocytosis, and as we know, marked inflammation of the mesenteric lymph glands. Again, in the early stages of syphilis, with acute adenitis, lymphocytosis is the rule. On the other hand, we know that all forms of adenitis are not accompanied by lymphocytosis. In Hodgkin's disease, for instance, lymphocytosis is only occasionally found. So, too, in the adenitis accompanying malignant disease there is ordinarily no lymphocytosis.

With reference to the blood find in general tuberculosis it may be said that, except for a reduction in hemoglobin, there are no important blood changes—unless there be secondary infection. As Cabot says, "whether or not tuberculosis of the abdominal or other internal lymph glands affects the blood, I am unable to say."

CONCLUSIONS.

In the absence of more extended series of observations than the present one, too much theorizing is certainly out of place. Yet it seems fair to emphasize the fact that in two diseases where we know clinically that a tracheobronchial adenitis exists, namely, pertussis and measles, there is a constant lymphocytosis. And in the 10 cases of enlarged bronchial glands studied, lymphocytosis was found in every case. In the light of these cases it seems fair to assume that the lymphocytosis of pertussis and measles is to be explained by the irritation of the tracheobronchial gland.

If after further investigation and after study of a much larger series of cases, the observation of constant lymphocytosis be confirmed, we shall have an additional sign—and I believe a valuable one—looking to the more definite diagnosis, and, therefore, to the more successful treatment of the condition of enlarged bronchial glands.

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DISCUSSION.

DR. R. B. GILBERT, Louisville, considers that the situation of these bronchial glands at the bifurcation, and against the posterior wall of the trachea, renders them, when they are enlarged, a potent source of irritation. They are enlarged more or less in every case of bronchopneumonia, and especially in measles. The method followed by Dr. Gilbert in cases of persistent cough following measles, and which ordinary cough remedies fail to relieve, is to give full doses of potassium iodid, and if the cough is due to the irritation caused by enlarged bronchial lymph nodes, it will frequently be rapidly relieved by the administration of this remedy. These conditions are most likely to be met in persons with a syphilitic or scrofulo-tubercular diathesis.

DR. GEORGE N. JACK, Depew, N. Y., said that it seems strange to him that such an ancient disease as asthma, as well as other common respiratory conditions, should be attributed to a spasmodic contraction of the air tubes, as the anatomist has clearly demonstrated that it is absolutely impossible for one of these tubes to contract. Therefore, the condition must be due to direct obstruction. The bronchial lymphatic glands are the dumping grounds of the blood. The blood passes through them and rids itself of its impurities. If, then, the blood is loaded with waste and useless material while in the lungs for oxygenation and purification, it will naturally deposit as much as possible of this useless substance in the bronchial lymphatic glands. The blood, stool, urine and clinical history of the patient must be our chief guides in diagnosis.

DR. THEBON W. KILMER, New York City, is of the opinion that the bridge of tissue sometimes formed after the removal of adenoids as the result of adhesions, and which gives the same symptoms as the adenoids themselves, should be broken down with the finger, a month after the adenectomy. He has never observed pseudo-pertussis or pertussoid forms of cough and is inclined to look on them as myths. He has never found bronchial lymph nodes during life. Even if the diagnosis is made, he knows of no efficacious treatment to promote their reduction.

DR. LOUIS J. LAUTENBACH, Philadelphia, emphasized the fact that peculiar malformations of the bony structure of the palate are often associated with these obstructions in the posterior nares. This peculiar condition of the bony structure may escape attention unless it is looked for. He also referred to the frequent occurrence of deafness resulting from nasal disease, catarrhal deafness being practically always so caused. In cases where adenoids are said to recur after removal it is often not a true recurrence, but a new growth brought about by the same underlying conditions which produced the first enlargement.

DR. ALFRED FRIEDLANDER said that it is perhaps going a little too far to assert that the coughs Dr. Gilbert referred to are always due to adenoids. He has seen many improve without removal of the adenoids, and thinks that when there is tracheobronchial adenitis a primary localized tuberculosis is present and it is surprising that more of these cases do not develop a generalized tuberculosis. He considered it our duty to treat these cases precisely as we would treat a localized tuberculosis elsewhere. Even when there is only a suspicion of such a condition, the patient should be given the benefit of the doubt and treated accordingly. The importance of removing adenoids in children is appreciated, but too much stress should not be laid on this one factor alone. It has become the rule to ascribe all the ills of children to adenoids, but it is a fair assumption that sometimes the illnesses are not due to this condition.

Domestic Opium.—In his annual report Secretary Wilson of the Department of Agriculture states that opium poppies have been grown successfully in Vermont, both the white-seeded and the blue-seeded varieties yielding good crops. Experiments are now being carried on to ascertain the possibility of obtaining morphin directly from the plant. If the experiments prove successful, the American product may replace the oriental opium as a source of morphin.

THE IMPORTANCE OF AN EARLY AURAL EXAMINATION IN ACUTE DISEASES OF CHILDREN.*

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The prominence of aural disease has been brought very frequently before the profession for the past decade; but I know of nothing in aural disease of children of greater importance than an early recognition and treatment of some of the conditions I shall enumerate.

It is more particularly to call your attention to certain forms of aural disease, especially in children, not easily recognized by the pediatrist or general practitioner, and therefore all the more important, or if recognized, usually too late to be of value from a prophylactic standpoint, that this paper is written.

You are all familiar with the complications frequently accompanying the acute exanthemata, but usually your first intimation of an aural condition is to have the little patient complain of earache, or if it be a young infant, you expect him to pull or tug at the affected ear, and cry out with pain, thus drawing your attention to the local condition. That such manifestations do take place in a certain number of cases, there can be no gainsaying; but this number is small in comparison with the number of cases that never complain, nor give the slightest evidence of any ear trouble being present until a discharge is noticed coming from the external auditory canal.

It is of these cases that I wish to speak more in detail, and of how important it is that frequent otoscopic examinations be made that we may early recognize and treat any pathologic conditions found, and thus prevent the patient from undergoing a long and dangerous sickness that might be caused directly or indirectly by such an aural condition.

TECHNIC OF EXAMINATION.

Otoscopic examination in very young children is by no means an easy matter to those not constantly practicing it; in the first place, the specula used are too large; secondly, the auricle is drawn upward, backward and outward, and in this way the major portion of the lumen of the canal is shut off from our view—whereas if we draw the auricle gently downward and backward, we open the canal and expose to view the deeper structures.

Then, too, we will oftentimes find the circumference of the meatus lined with cerumen, and if we attempt to force the speculum beyond this, we not only hurt the patient, but our view is obstructed by a speculum, the distal end of which is filled with wax. In these cases it is always well to syringe the canal with warm, sterile water, and remove the obstructing cerumen before we attempt a further examination.

CONDITIONS OF TYMPANIC MEMBRANE.

In many cases, on inspecting the drum membrane, when middle ear disease is suspected, we see a white, rather prominent looking drum, showing not the slightest vestige of congestion, but if we here bring to our aid a cotton tipped probe, and gently brush the surface of the drum membrane with it, the white looking drum will be replaced by a bulging, reddened and angry looking surface, which shows the true condition of the middle ear. The pressure behind the drum having been so great as to cause a rapid exfoliation of the external epithelial layer; and this on inspection can easily be mistaken for a drum membrane free from involvement.

Such an error is made again and again, and then when pus suddenly appears in the canal a few hours after the examination, the observer is surprised at such a rapid infection, and wonders how so large an accumulation of fluid or pus can form in such a short time, when in reality it was present all the time.

Another picture, the otoscope examination reveals in cases complicating the exanthemata, is that of the upper half of the drum membrane looking normal save for a slight tinge of congestion along the superior border of Shrapnell's membrane, while the lower half, and particularly that portion of the drum corresponding to the tubal opening in the middle ear looks lustreless; and has a grayish, mottled appearance. This shows that already the mucous membrane of the tube and that portion around the tubal entrance is swollen and pouring forth a serous exudate which demands an immediate evacuation through an opening in the drum if we wish to cut short the process, and prevent the disease from attacking structures higher up.

Another picture frequently seen, and when present usually accompanied by severe earache, is that of a drum membrane showing decided congestion of the whole upper third; the lower two-thirds retaining its lustre; neither bulging nor fullness is present, but the superior and posterior portion of the membranous canal is intensely reddened; the excessive pain being no doubt due to the involvement of this connective tissue fold in the membranous canal.

Here early incision is advisable, even before bulging takes place in order that we may prevent extensive attic involvement.

AURAL COMPLICATIONS OF THE EXANTHEMATA.

In young children suffering from the acute exanthemata, it is, I believe, just as important that their ears should be examined each day, as it is that they should be seen for their general condition, for, after all, the mortality is quite as large in these diseases from the aural complications as from any other; and many of the cases of deaf mutes, as well as the legion of chronic purulent ears with their sequelæ might be avoided if in the future this precaution were taken. The usual time for an aural condition to develop, complicating these acute diseases, is any time after the third day, and it is all the more important that these aural examinations be made frequently, for in a large number of the cases, there is no symptom pointing to an aural condition until after the damage has occurred, namely, a spontaneous rupture with destruction of a portion of the drum membrane, which might easily have been avoided, had otoscopy been practiced frequently.

When the general practitioner or pediatrist is treating any of the acute inflammatory diseases, and the disease is subsiding, and the existing temperature is high and out of all proportion to that stage of the disease, it is wise to perform otoscopy, as in many of these cases here will be found the cause of the temperature, and a speedy relief from anxiety will follow as the fever drops when the ear is appropriately treated.

AURAL COMPLICATIONS IN OTHER DISEASES.

Gastrointestinal Diseases.—This condition occurs frequently in diseases other than the exanthemata; as for example, complicating an acute gastrointestinal condition, where the local symptoms are fast disappearing and yet the child is fretful, uneasy, and the temperature remains high. All other conditions excluded, if the ears

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are examined quite frequently, the cause for the child's latent symptoms is found here. Again, take a patient convalescing from pneumonia or the "grippe," when the temperature varies and remains high, and the physician for several days can not locate the cause of the existing fever, but thinks it is a latent "grippe" or an incomplete or delayed resolution, or that that much maligned disease, malaria, is at work on the patient's system again —if when such conditions present themselves, the ears be examined carefully many times, here will be found the cause of the disturbance, when, before examination, it was not even suspected.

Follicular Tonsillitis.—It is also advisable that frequent examinations of the ear be practiced during an attack of acute follicular tonsillitis, though here pain is usually a prominent symptom in children owing to the fact that there is usually lymphoid hypertrophy present in the naso-pharynx, and the swelling existing here causes pressure on the eustachian tubes, and the pain is at once referred to the ear.

A prophylactic measure of the greatest importance in young children, is to see that all adenoid tissue be removed before the winter months, as the presence of this tissue is very often the exciting cause of an acute middle ear suppuration, and very frequently such a suppuration will not cease until the exciting cause, namely, the adenoids, has been removed. It is then often astonishing to see how rapidly resolution will take place without any local treatment whatever directed to the ear, after this source of irritation has been removed; or if it does not clear up quickly the treatment necessary to bring about a favorable result will occupy a much shorter period of time.

Hypertrophied Tonsils.—Hypertrophied tonsils should also be sacrificed when there is a history of frequent attacks of ear trouble in children, as enlargement in this region causes engorgement around the orifice of the eustachian tubes, and this is an exciting factor, even though somewhat remote from the seat of the disease.

Coryza.—Another condition in children requiring otoscopic examination is when an acute coryza is present, for here, with the frequent and forcible blowing of the nose, bacteria-laden mucus is often forced into the opening of the tube, with the result that an acute condition of the middle ear is speedily established, and frequent examinations reveal to us the disease in its very earliest stages, thus enabling us to check the process without impairment of audition or any of the unpleasant sequelæ coincident with middle ear suppuration.

Nasopharyngeal Catarrh.—In many cases of mild nasopharyngeal catarrh, where all the symptoms are practically absent, save temperature, if the ear be examined here will be found the cause of this temperature, for otoscopy will show us acute middle ear changes taking place and this condition is not infrequently found where no adjacent local manifestations are present, not even a simple cold.

Typhoid.—Another disease, and one often overlooked, where otoscopic examinations are necessary, is typhoid fever; for here the aural complications when they do exist, if overlooked, leave the audition permanently impaired. There is rarely a symptom present in this disease to call one's attention to the ear, and many a case of labyrinthine disease owes its origin to an attack of typhoid fever.

Mastoiditis.—One of the complications of acute middle ear suppuration in young children, mastoiditis, may, I think, be appropriately mentioned here, as in the minds of many practitioners, such a complication does not exist unless the ear is found to be displaced forward, and a swelling of more or less magnitude, with edema, is found over the mastoid.

Given a case of acute middle ear suppuration following any one of the many diseases which it may complicate, and this disease having subsided, we have a running ear to treat, with one other symptom present, namely, temperature. This temperature is usually not high, but varies from 99 to 100.5, continuing for several days with morning remissions and evening exacerbations, without any apparent change in the character of the secretion coming from the ear, except a slight diminution in quantity. We find also on cleansing the external auditory canal, and wiping away the secretion from the point of perforation in the drum membrane that pus oozes through this opening drop by drop as we wipe it away. In such a condition as this, delay is extremely dangerous, for there is already an infiltration of pus throughout the mastoid structure and an operation for mastoiditis here is imperative, for if allowed to progress, in a few days the case will present the gross physical signs described above.

It is very difficult, and frequently impossible, to elicit the slightest evidence of pain in young children when we press on the mastoid process, even though the mastoid be filled with pus, for these little patients will scream quite as much when the normal side is being examined, as they do when the diseased side is gone over; and if one waits for the appearance of edema over the mastoid, as an indication for operation in these young children, he is increasing the danger tenfold by inviting one or more of the complications to take place.

Another fallacy in connection with this phase of aural complications, is, that when a swelling takes place behind the ear in young children, and there is a subperiosteal accumulation of pus present, that it is quite sufficient to make an incision, the so-called Wilde's, in the soft parts over the swelling, evacuate the pus, pack it, and believe nature will do the rest. A condition like this treated in such a way almost invariably leads the patient into danger from the complications arising thereafter, to say nothing of the permanent impairment of the hearing, for a chronic aural discharge will be the result of such treatment.

Abundant clinical evidence has been brought to bear on this point, from all modern otologists, and the importance of opening the mastoid, and draining the middle ear in these cases has, in my experience, been amply demonstrated during the past two years. In a large hospital service, 57 cases of subperiosteal abscess were present in young children ranging from 5 weeks to 6½ years of age; in all of these the mastoid was opened and the middle ear drained posteriorly, and 56 of the mastoids contained pus. In the one in which pus was not present, granulation tissue was found throughout, and the structure was just on the point of breaking down.

In these cases do not be content with a simple incision and evacuation, for if this only be done a dangerous legacy is left these little patients, and one to which unfortunately, all too many succumb. Even though in many cases the external evidences have disappeared, the ear still continues to discharge, because it has not been properly drained, and this discharge is the result of the mastoid necrosis, which is still progressing, and sooner or later he who is treating such a case is brought to face a still more serious condition, namely, that of one or more of the frequent intracranial complications of otitic origin.

Another serious complication of acute aural suppuration which is by no means infrequent in young children, is that of a primary involvement of the jugular bulb, without disease of any of the mastoid structure. Here the principal symptom is mainly one of temperature, which ranges all the way from normal to 107 F. The rises are rapid and the remissions to normal or near it, quite as abrupt. In adults, we usually associate such a condition with more or less well defined symptoms, the principal one, aside from the temperature, being the presence of a chill or chilly sensation. In young children, we hardly ever observe this symptom, but in the place of it the little patients have cold hands and feet preceding the rise in temperature. These with a discharging ear may be the only symptoms present for several days, until the child gradually becomes septic. When the observer suddenly awakens to this fact, it is usually too late to save the life of his patient.

The question may be asked, "How can a primary involvment of the jugular bulb take place, without first involving the mastoid structure?"

It can take place very easily under the following conditions:

With an active, virulent infection of the middle ear cavity, and the presence of a large irregularly shaped bulb encroaching on it, and these two spaces separated by only a thin, parchment-like wall of bone, it becomes a very easy matter for the infection to pass through this thin plate of bone, and poison the blood current, before such infection would have time to travel its usual pathway, namely: Through the mastoid structure. That such a complication is not infrequent, can be readily comprehended, when in my experience alone, five such cases have been encountered during the past six months. The successful treatment of this condition is an early operative procedure.

Eczema of the External Auditory Canal.—Another condition where an otoscopic examination is indicated is where we find an eczema present of the external auditory canal and meatus, and sometimes extending over nearly the whole auricle, and down the side of the face. This condition is caused in nearly all the cases by a scanty serous discharge coming from the middle ear, and this moisture lies in the canal until an exfoliation of the superficial epithelial layer takes place, and the little patient's first symptom is an intense itching at the meatus, accompanied by a very natural desire to scratch, which is indulged in with the result that in a very short space of time, a well-developed eczematous area is present. Even though this complication be treated faithfully and conscientiously, it will recur from time to time, because the etiologic factor in its production has not been discovered, namely, the scanty acrid discharge from the middle ear. Had an examination of the ear been made on the appearance of the eczema, these little sufferers might have been spared weeks of pain and annoyance, instead of enduring the torture they are allowed to undergo.

A rather infrequent complication of this eczematous state in young children is the appearance of a diffuse circumscribed external otitis or furuncle, caused by scratching the meatus. When this condition is present and well developed, it many times is mistaken for mastoiditis, owing to the large amount of swelling which is present over and around the mastoid process. An aural examination will always clear this up and the true cause be discovered in the external auditory canal and meatus.

CONCLUSION.

I would in no sense be understood as always advocating the calling in of an aurist for the making of these frequent examinations, but in each case, when the general practitioner or specialist in children's diseases is first called to examine the case, the physical examination is an incomplete one unless the ears are included. It is a simple matter for those not accustomed to perform otoscopy, by a little practice, to be able to do it well enough for all practical purposes.

To the general practitioner of the future will belong the credit of a decrease in the number of cases of chronic purulent ear disease with their sequelæ, for if recognized and treated early, an acute condition need never reach the chronic stage. If, however, a chronic ear disease be encountered, no time should be lost in an attempt to rectify the pathologic condition, so that the patient may retain his audition; and also to prevent the possibility of an intracranial condition occurring later.

62 West Fifty-second Street.

DISCUSSION.

DR. HERMAN JARECKY, New York City, stated that the routine examination of every child suffering from an acute condition should always include a careful inspection of the ear. Recently Dr. Kerley was called to see a child that was being treated for empyema. On examination, Dr. Kerley found that the case was one of acute middle ear disease. Dr. Jarecky saw the patient on the following day and did a paracentesis: the temperature dropped to normal and all the symptoms of the supposed empyema disappeared. Dr. Jarecky said that, in the adult, a view of the drum membrane is obtained by pulling the auricle upward and backward, in infants it must be drawn downward and backward, and in older children simply backward.

Acute middle ear disease during the acute exanthemata is particularly liable to affect children who are suffering from adenoids, because the drainage is imperfect. In typhoid fever the ear complication is probably frequently overlooked on account of the general apathetic condition. In every case in which the ears are involved with bulging of the drum membrane, paracentesis should be done without delay. The simple operation can be done by the general practitioner as well as by the specialist. The ear should be properly irrigated with bichlorid solution or peroxid, and the drum membrane incised. In cases in which the posterior part of the wall is involved, we should not wait for bulging before incising the drum membrane.

DR. SAMUEL J. WALKER, Chicago, emphasized the necessity for examination of the ear in acute infectious diseases in children, and that middle ear disease may simulate almost any disease of childhood, such as meningitis, typhoid fever or pneumonia. He was called recently to see a child three years of age that was seemingly very ill. The child's father was a physician and had made a diagnosis of probable pneumonia. The patient was carefully examined, but Dr. Walker was unable to find any objective sign of pneumonia. On the following day the child's father was inclined to believe that the case was one of typhoid fever, but this diagnosis was practically excluded by the result of a blood count, which showed a leucocytosis of 28,000. On this second day the chest finding was still negative, so that pneumonia could probably be excluded. An ear specialist was called in, examined both ears, and pronounced them practically normal. The child, however, continued to show severe symptoms of acute infection. On the third day the ear man again saw the patient. At this time he found some redness and bulging of the membrane in both ears. Paracentesis was performed and there was a free discharge of pus followed by a rapid subsidence of all symptoms.

DR. SAMUEL MCC. HAMILL, Philadelphia, said that in his wards at the hospital, three out of seven cases of typhoid fever developed a complicating otitis media. In the majority

of instances of this kind that he has seen the diagnosis was not made until the drum membrane had ruptured spontaneously. Most of these cases were in children, and in the majority of instances with which he has come in contact the complication has occurred almost at the point of defervescence in the course of the typhoid fever.

DR. THERON W. KILMER, New York City, asked Dr. McKernon if he advocates paracentesis in every case of bulging of the drum. Dr. Kilmer has seen the inflammation disappear in these cases under the use of douches of hot boracic acid solution, and without incision.

DR. LOUIS FISCHER, New York City, has found the temperature in suppurative conditions of the middle ear a rather uncertain guide. A child with scarlet fever, while progressing satisfactorily, is suddenly "restless during the night:" the temperature is 99; pulse, 120. The next day there is a discharge from the ear. Excluding the restlessness there is sometimes no indication of a suppurative process going on. He has come to look on the temperature as a not very positive symptom in acute suppurative otitis, especially during the infectious diseases. Many cases of suppuration of the middle ear are the result of mechanical infection through the nose and eustachian tubes by irrigation, etc. He believes that if we leave the nose alone, and do not irrigate, as is so frequently done in the acute infectious diseases, there will be fewer cases of acute otitis media.

DR. S. W. S. TOMS, Nyack, N. Y., emphasized the possibility of nasal cleansing setting up middle ear disease. About two years ago he saw a child with a purulent rhinitis, and made an effort to cleanse the nose by irrigations. The following morning the child developed a temperature of 104, and he found the left ear drum bulging. The temperature rose to 107 within three hours, and the child was in a desperate condition, the pulse being 186 and the respirations 84. An aural specialist was called in, who incised the left ear drum, evacuating no pus, but some bloody serum. The drum of the opposite ear was apparently perfectly normal. The child's general condition decidedly improved after the paracentesis, but the temperature did not drop more than one degree. The respirations and pulse also remained high. Dr. Toms frequently examined the right ear drum during the night, and the next morning found that it distinctly bulged. The otologist was again sent for and incised the membrane, evacuating a little bloody serum. Within three hours after this second paracentesis the temperature dropped to 100, and the child's further recovery was uneventful. Since this case, Dr. Toms has carried a head-mirror and speculum with him, and to examine the ears as a routine measure in case of acute disease in a child.

DR. THOMAS S. SOUTHWORTH, New York City, said that in the acute infectious diseases, a number of patients will develop middle ear trouble, whether the nose is irrigated or not. He thinks that if the irrigation is done carefully and as much as possible of the septic material in the naso-pharynx is removed, the number of cases of complicating ear disease will be decreased rather than increased. The aurist sees only the irrigated cases which develop otitis, but he does not see the larger number saved from otitis by irrigation. Of course, the irrigations should be made very gently, preferably by fluid poured into the nose from a spoon.

DR. F. L. SMITH, Bridgeport, Conn., said that it has often been very difficult for him to decide just what to do and when to operate. Not long ago he saw a patient who complained of an earache. He examined the drum membrane, and from its appearance did not suspect any serious middle ear trouble. During the night the drum ruptured spontaneously, and there was a purulent discharge from the ear.

DR. CHARLES G. KERLEY, New York City, said that he gave his experience with 51 cases in a paper at the recent meeting of the American Pediatric Society in Detroit. In 34 there was no pain nor other local manifestation of ear involvement. The only symptom indicating the middle ear as the seat of the trouble was the elevation of temperature. In the treatment of children it is just as important to make a careful examination of the ear as of the heart or lungs.

Dr. J. F. McKernon agreed with Dr. Walker that middle ear disease may simulate almost any disease in the category. In typhoid fever the ear symptoms are most commonly observed during the stage of defervescence. If typhoid patients could have the ears examined systematically after the first week, Dr. McKernon believes that we could often prevent serious middle ear trouble, with resulting labyrinthine disease, and the dry catarrhal form, in which the prognosis is so absolutely bad as a sequela of typhoid fever.

Dr. McKernon said that he would incise the drum membrane in every case if it were bulging, and in a certain number of cases he would even make the incision when the bulging was absent, depending on the physical signs and symptoms presenting. He disagreed with Dr. Fischer in regard to the temperature in middle ear disease. There are a certain number of cases where there is no temperature at the time we see the patients; these patients may have had a temperature before we saw them, or may be patients who are more or less resistant to temperature changes, but in the vast majority of cases the temperature is one of the predominating features throughout. In streptococcus infection the temperature is usually high and continuous until the pus is evacuated, whereas in the mixed infection with the pneumococcus the temperature is not so high. In staphylococcus infection the temperature is not very high. In adults the temperature is not so predominating a factor as in children. He has not used a douche in the nose nor nasopharynx for ten years. If the child is old enough, he holds its head sideways, and allows the fluid to run through gently. If there is much secretion in the nose it can be wiped out with a cotton-tipped probe. He never uses the douche nor spray, and disapproves of their use in diphtheria or scarlet fever. In the acute middle ear diseases in children, the presence of pus is not always necessary. There may be infected serum just as well as pus, and the former calls for evacuation quite as much as the latter. It is well known that many of these cases apparently recover without surgical interference, but a large proportion will show evidences of pronounced impairment of hearing in future years.

SOME PHYSICAL SIGNS IN INFANTS AND CHILDREN NOT SUFFICIENTLY EMPHASIZED.*

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AND
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Several years ago we began a systematic examination of the heart and lungs of infants and children in our out-patient services in the Howard and Polyclinic Hospitals, with a view to confirming certain observations which we had made, some of which had not been sufficiently emphasized in the literature, and others of which were at variance with the results reported.

CONDITIONS IN THE LUNGS.

Our observations relate exclusively to normal or functional conditions. In relation to the lungs, they are three in number: First, an area of impaired resonance under the left clavicle. Second, the area of transmission of the bronchial type of breathing as heard over the root of the lung. Third, the influence of position on the percussion note in infants.

An Area of Impaired Resonance Under the Left Clavicle.—This sign was first noted accidentally by one of us in a child convalescent from bronchopneumonia. In this instance, owing to the absence of all other signs

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

of pulmonary consolidation it was interpreted as probably indicating enlargement of some of the lymphatic glands. In the study of subsequent cases of bronchopneumonia, this same area of impaired resonance was observed and found to persist until the patients passed from under observation. The constancy of its presence led us to search for it in the chests of infants and children free from pulmonary diseases. These studies, which have extended over a period of two years, have convinced us that this is a normal manifestation, constantly present up to the age of nine or ten years, and not infrequently as late as the thirteenth year. The degree of impairment varies in different individuals. It is difficult to elicit in early infancy. It is always present under the inner third of the clavicle. It occasionally extends outward to the midclavicular line, gradually fading as this point is approached; it extends in a downward direction to the first interspace and not infrequently blends into the cardiac dullness.

Unfortunately, we are not able to give an entirely satisfactory explanation for its presence. In a few postmortem studies, which we have made with the idea of elucidating this point, the only feature noted, which may have some bearing on its production, was the exposed condition of the great vessels. The left lung in early life lies more posteriorly than in the adult. The anterior border, in not extending so far forward, leaves the great vessels, as it does the heart, in more intimate contact with the chest wall, which naturally results in producing a higher pitched note over the portion of the chest immediately overlying. This probably does not account for the instances in which the impairment extends as far to the left as the midclavicular line, unless it be that the relatively extensive area of contact with the solid organs—the great vessels and heart—reduces the elasticity of the chest wall sufficiently to partially deaden the pulmonic resonance for a limited distance beyond the point of contact with these solid organs.

The importance of this observation is manifest. We have been taught, heretofore, that if there is any difference in percussion resonance over the apices, it is somewhat higher over the right. On the basis of this teaching, one would naturally look on an area of impaired resonance under the left clavicle as indicating some abnormality of the lungs, great vessels or lymphatic glands. It also has an important bearing on the determination of the upper area of cardiac dullness. In many instances, as stated, it blends into it, and in these, renders impossible its definite delimitation.

The Area of Transmission of the Bronchial Type of Breathing.—This is ordinarily heard over the root of the lungs, and varies greatly in different children. Posteriorly, it is usually limited to the interscapular space and supraspinous fossæ. It is often conveyed to the entire scapular area and it can sometimes be heard just above and in front of the angle of the scapula, about in the posterior axillary line—as a high-pitched, distant, bronchial murmur, which is sometimes so misleading that we have seen it mistaken for the bronchial breathing of consolidation. When heard here, it is usually bilateral, assuming that the child is examined in a position which renders breathing equal on the two sides. It is much more common in children under six years of age, although we have noted it after this period. Dr. D. L. Edsall tells us that he has sometimes noted the same thing in the examination of the adult chest, as well as in that of the child.

The Influence of Position on the Percussion Note in Infants.—It has been indefinitely stated in text-books, that placing a child on pillows or even in contact with the ordinary mattress, will, to some extent, deaden the sound produced by percussion of the chest. We have not, however, seen emphasized in the literature the striking differences on the two sides of the infant's chest, when it is examined lying on its side with the dependent lateral surface of the chest wall in intimate contact with the bedding—an incorrrect position which is commonly employed in the examination of the chest. Under these circumstances, the elasticity of the chest wall is destroyed, the lung is compressed, air enters it inadequately and, in consequence, there results a striking increase in the height of the pitch of the percussion note, which, when compared with the note on the opposite side, proves very misleading, unless one determines its origin by examining the infant with both sides of the chest free and symmetrical.

THE HEART.

In the study of the heart, we have considered: First, the position of the apex beat. Second, the outlines of the heart. Third, the venous hum. Fourth, the functional murmur. These subjects have been much under discussion and the opinions regarding them are much at variance.

The Apex Beat.—In studying the position of the apex beat, we have examined the children in the upright position, recording as the apex the point farthest to the left and lowest down, at which it was impossible for us to obtain any cardiac impulse. We found that the area formerly described as representing the apex beat, namely, the point of maximum intensity of the impulse, was so variable in its position and frequently so far removed from the left border of cardiac dullness, as to give a very definite idea of the position of the point of the heart. There is considerable variation in the position of the apex, as we have determined it, but it is much less than the variation of the point of maximum impulse.

We have always believed that the point of the heart remains in the fourth space and near to the midclavicular line for a longer period than is ordinarily supposed, and that after descending from the fourth to the fifth space, it almost constantly finds itself in the midclavicular line and occasionally outside of it; the approach to the normal position of the adult being made on a horizontal plane from this point. The results of our work have confirmed these views.

In a series of seventy-one infants under three years of age, examined in our dispensary services, we found the apex beat in the fourth space fifty-seven times. In seventeen of these it was just without the midclavicular line; in three, one-half inch without; in twenty-five, in the midclavicular line, and in twelve just within the midclavicular line. In fourteen cases, it was in the fifth space, just within the midclavicular line four times; one-half inch without the midclavicular line three times; just without once, and in the midclavicular line six times.

In a series of thirty-six cases, studied during the fourth and fifth years, the apex was in the fourth space twenty times; just without twice; in the midclavicular line seven times; and just within the midclavicular line eleven times. It was found in the fifth space thirteen times—once without the midclavicular line; eight times in the midclavicular line; three times just within, and once one-half inch within the midclavicular line. Three times it was apparently be-

hind the fifth rib in the midclavicular line. Up to the end of the fifth year, therefore, the apex is found much more frequently in the fourth space than in the fifth space. During the following year, however, there comes a very abrupt change.

Thus, in thirty cases, it was found in the fourth space but eight times—once one-half inch outside the midclavicular line; twice in the midclavicular line; four times just within the midclavicular line, and once one-half inch within. It was noted twenty-two times in the fifth space—appearing twice one-half inch without the midclavicular line, eight times in the midclavicular line, six times just within the midclavicular line, and six times one-half inch within the midclavicular line.

In one hundred and thirty-eight cases, studied from the sixth to the twelfth year, it was noted but thirty-three times in the fourth space—most frequently in the midclavicular line, (eighteen times in the midclavicular line, seven times just within the midclavicular line, eight times one-half inch within the midclavicular line). In the remaining one hundred and five cases it was found in the fifth space—and again most frequently in the midclavicular line, namely, thirty-six times; twenty-eight times it was just within the midclavicular line, twenty-two times one-half inch within and nine times (during the eleventh and twelfth years) one inch within the midclavicular line.

It is worthy of note that, in none of the eleven cases observed in the twelfth year, was the apex beat found in the fourth space.

As the result of the examination of these two hundred and seventy-five cases, therefore, it may be concluded that, up to the sixth year, the apex beat is found much more commonly in the fourth intercostal space and in the midclavicular line and that, after this period, it is usually in the fifth space, in or just within the midclavicular line. Occasionally, however, it continues to beat in the fourth space even up to the twelfth year.

Area of Cardiac Dullness.—With reference to determining the outline of the normal heart, we have examined a series of one hundred and ninety-one cases. The patients have been examined almost entirely in the upright position. In infants under one year of age, the recumbent posture was maintained because we found that the results of outlining the heart with them in the upright position was extremely unsatisfactory. Insofar as we were able to compare the results in the two positions, at this period of life, they were not very different. The hands were used for both plexor and pleximeter and the percussion stroke was made extremely light—an absolute necessity in the outlining of these hearts, if one desires to obtain accurate results. Probably the term accurate is not appropriately applied to the outlining of the heart of infants and children. We do not agree with those who believe that it is easier to outline the heart in children than in adults. In the first place, the heart lies freer in the chest in early than in adult life, and consequently, is more readily displaced. Aside from this, infants and children are much more liable to extreme distention of the abdomen, which, in pushing up the diaphragm, tends to push the heart upward and to the left, and, what is probably still more important, the relatively greater size of the liver and its frequent enlargements, give rise to an area of impaired resonance to the right of the sternum, which it is often impossible to differentiate from the right border of cardiac dullness. We have endeavored, insofar as possible, to eliminate cases in which these conditions might have interfered with our results, but, notwithstanding these precautions, we submit our conclusions with a certain amount of trepidation. We are quite willing to adopt the words of Clifford Allbutt, in relation to this subject, which are as follows: "The facility with which modern physicians delineate and record the varying dimensions of the heart excites my admiration—a skill I can not hope to attain; the conditions of physical diagnosis seem to me indeed to be too inconstant for such appraisements."

In fifty-one cases, examined during the first three years of life, the upper border corresponded to the second rib thirty-four times, to the second space ten times, and to the upper edge of the third rib seven times. The right border was at the midsternum twenty-nine times, at its right edge fourteen times, and at its left edge eight times. The left border was in the midclavicular line sixteen times, just without twenty-one times, and one-half inch without fourteen times.

During the fourth, fifth and sixth years, in forty-one cases, the upper border corresponded to the second rib ten times, to the second space eleven times, and to the upper border of the third rib twenty times.

The right border extended to the left edge of the sternum once, to the mid sternum twenty-four times, to the right edge of the sternum fourteen times, and one-half inch beyond its right edge twice.

The left border extended one-half inch without the midclavicular line three times, just without sixteen times, and was in the midclavicular line twenty-two times.

During the seventh, eighth and ninth years, in fifty-five cases observed, the upper border was over the second rib eight times, the second space thirteen times, and the upper border of the third rib thirty-four times.

The right border corresponded to the left edge of the sternum five times, to the mid sternum twenty-two times, to its right edge twenty-three times, and was one-half inch beyond its right edge five times.

The left border was found one-half inch outside the midclavicular line fifteen times, in the midclavicular line thirty-six times and just within four times.

During the tenth, eleventh and twelfth years, in forty-three cases studied, the upper border corresponded to the second rib five times, to the second space eleven times, to the third rib twenty-seven times.

The right border was over the left edge of the sternum twice, over the mid sternum twenty-seven times, the right edge eleven times, just beyond the right edge once, and in two instances one-half inch beyond.

The left border was seven times one-half inch outside the midclavicular line, seven times just without the midclavicular line, twenty-nine times in the midclavicular line.

In the light of the above figures we conclude that the average outline of the heart for children under three years of age is as follows: Upper border, second rib; right border, mid sternum; left border, just without the midclavicular line.

From the third to the sixth year: Upper border, the upper border of the third rib; right border, mid sternum; left border, in or just without the midclavicular line.

From the sixth to the twelfth year: Upper border, third rib; right border, from the mid sternum to the right edge of the sternum; left border, most commonly in the midclavicular line.

The two remaining points to be considered, the venous hum and functional murmur, are of much more importance than the determination of the cardiac outline.

The communications in the text-books on these subjects are very scant. A considerable number have been contributed to the literature in the form of theses and essays, and in these one finds a very remarkable and inexplicable diversity of opinion as to the frequency, etiology, nature, time, distribution, and significance of these murmurs. Only a few observers admit that they are present, except with the greatest rarity, during the first four years of life; for instance, such a careful observer as Hochsinger[1] makes the statement that "during the first three years, systolic murmurs heard over the precordia are certainly of organic origin."

It is for the purpose of refuting statements such as these and with a view to elucidating some of the points above referred to, that we have made a careful, systematic study of a large number of children. We have examined children of all ages up to the twelfth year. We have accepted the general run of dispensary cases, excluding all febrile cases, those having deformities of the chest and those in whom the heart's action was abnormally rapid. We have not, in these cases, made systematic examinations of the blood. Where anemia was manifest on observation, it was recorded in our notes. The majority of our patients were asthenic children, with a degree of anemia, not manifest in the appearance. We recognize the unreliability of this method of excluding anemia, and it is very probable, that in many, and perhaps the majority of our cases, there may have been a slight degree present. But we do not believe that the anemia was the main factor in the production of the murmurs. We have noted marked anemias without murmurs and found them present in patients with a normal hemoglobin percentage. We are much more inclined to believe that these murmurs bear a closer relationship to the general nervous tone of the individual, which extends itself to the nervous mechanism controlling the condition of tone of the heart and vessels—conditions which may be secondary to any of the infectious or nutritional disturbances. What the possibilities of a diminution in the bulk of blood in children of this type are, we do not attempt to determine. If the defective conditions of hygiene under which they exist can yield such a result, it is possible that this may have some etiologic significance.

The Venous Hum.—In the study of the venous hum, we have made it essential that the hum should be present when the patient was examined with the head fixed in the median line. Turning the head away from the side under examination will always augment the murmurs and sometimes produce them where they had not previously existed. We have used a double stethoscope, with a chest piece three-quarters of an inch in diameter, and in its application used only sufficient pressure to bring its circumference in complete contact with the underlying surface. We have examined all of our patients in both the upright and recumbent postures.

In the two hundred and twenty-six cases in which we studied the venous hum, twenty-four occurred during the first three years of life, four of these being in the first twelve months. Following this, the number of cases was about the same in each year. In all but thirty-six, the hum was best heard over the right jugular vein. In the thirty-six in which this was not so it was best heard over the left. It was heard alone on the right side sixty-four times and alone on the left twelve times. In eighty-nine cases it was heard over both the right and left, being best heard in the right side seventy-seven times and in the left twelve. In thirty-eight instances the distribution was more extensive, the following being the most common: Over the right jugular, the intensity being greatest at this point, under the right clavicle, in the suprasternal notch, over the manubrium sterni and over the left jugular. Occasionally it was heard only over the right jugular and under the right clavicle. In several instances, the murmur was distinctly audible along the right edge of the sternum as low as the second costal cartilage, and in two instances, we heard it over the second left costal cartilage.

The murmur, as heard over the right jugular, was continuous in the vast majority of cases, having its maximum intensity during the systolic period. There was usually some reduction in the loudness of the sound during the end of systole with some augmentation in volume during diastole. In but six of these two hundred and twenty-six cases was the hum audible in systole alone, and in no instance did we hear it alone in diastole.

The influence of posture on the sound was striking. In only ten instances was the murmur audible when the patient was recumbent and in all of these it was much louder when the upright position was assumed.

The presence of this murmur over the manubrium sterni has interested us, in its relation to Eustace Smith's sign of enlargement of the bronchial glands. While the murmur disappeared in these cases when the patient was recumbent, it was again produced if the head was extended and sometimes when there was no hum present over the manubrium sterni in the upright position, it could be induced by having the head fully extended when the child was recumbent. The frequency of this phenomenon in cases in which there was an entire absence of other signs of enlargement of the glands, has led us to place very little reliance on this sign.

The extensive area of distribution of the venous hum may result in its being mistaken for murmurs at the base of the heart, or possibly for murmurs produced by lesions of the vessels. As has been noted in several instances, the murmur was audible as low as the aortic area and in two instances we have observed it in the pulmonary area. It is quite true that in all of these, if the patient was examined in the upright position, the murmur had the peculiar, humming, continuous sound which is characteristic of the venous hum, but in several instances, when the patient was placed in the recumbent posture, there persisted during systole a faint systolic whiff, which might readily have been mistaken for a murmur produced by lesions of the aortic or pulmonary orifice, or more probably, for a functional cardiac murmur. In the sub-joined study of inorganic heart murmurs we have noted a murmur, systolic in time, in the aortic area, which we believe to have been produced in this manner.

Functional Heart Murmurs.—We have studied these murmurs in two hundred and sixty-seven cases. Of this number, twenty-three occurred during the first three years of life (of these twenty-three, four having been noted during the first year, nine during the second and the remainder during the third). The figures during the remaining years are as follows:

1. Allgemein, Wein. Med. Zeit., 1888.

4th year	20	9th year	27
5th year	19	10th year	32
6th year	36	11th year	23
7th year	35	12th year	13
8th year	39		

These figures probably do not indicate the relative frequency of these murmurs at the various ages indicated, for the reason that, in our dispensary service, the number of children treated between the ages of three and ten years is relatively greater than the number treated during the first two or the eleventh and twelfth year. Aside from this, the difficulties attendant on the satisfactory examination of infants in a large dispensary service are too great to make the recognition of faint murmurs possible.

The murmur was best heard, in the majority of instances, in the pulmonary area—in one hundred and eighty of our cases. The next point of maximum intensity was over the body of the heart, in the space between the third rib, the left edge of the sternum and a point within and above the apex beat. This applied to forty-five cases. In twenty-six, the murmur was best heard at a point slightly above and just within the apex. It was sometimes transmitted slightly beyond the apex beat and infrequently as far posterior as the mid-axillary line. In sixty-one of our cases, it was audible only in the pulmonary area; on the other hand, the area of distribution, in some instances, was very extensive. It was not an uncommon experience to find the murmur audible in the pulmonary area, over the body of the heart, at and beyond the mitral area, and, in twelve instances, in the aortic area.

In the vast majority of cases, the murmur was inaudible in the upright position and, in only four, was it heard in the upright position and not in the recumbent. In two hundred and ten cases, it was audible in the recumbent posture only, while in fifty-one, it was audible in both the recumbent and upright.

To determine how definitely the foregoing studies illustrated the frequency of these murmurs in children under three years of age, through the courtesy of Dr. J. R. Bryan, we were enabled to examine a series of cases in St. Vincent's Home. The result of this work is so interesting that, in order to emphasize it, we tabulate it and give it separate consideration.

It includes a series of thirty-four cases—nineteen of them being one year old or under, seven of them between one and two years and the remaining eight between two and three years. The hemoglobin was estimated in all of these children. We did not make a complete blood examination, believing that the percentage of hemoglobin would prove a sufficiently satisfactory indicator of the degree of anemia. Of the nineteen under one year of age, twelve were foundlings and seven were breast fed children. These two groups are contrasted because they illustrate so well the effects of the natural and artificial modes of nourishment.

Among the twelve foundlings we found a venous hum present four times (in each instance it was heard only during systole), and functional murmurs seven times. The character and distribution of these murmurs was much the same as in the cases previously referred to and therefore need not be described in detail. In one instance, the venous hum was present without functional murmurs, and in four instances the functional murmur existed without the venous hum. The percentages of hemoglobin, in the cases indicated, were as follows: 50, 60, 70 twice, 74, 76, 77 and 90. In the instance in which the hemoglobin was 90 per cent., both the hum and the murmur were present. One case

TABLE 1.

CHILDREN UNDER ONE YEAR.

	FOUNDLINGS.												BREAST FED.							
Number of Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Age	4½ m.	2 m.	2¼ m.	2 wks.	9½ m.	4¼ m.	6m.	1 yr.	1 yr.	2 wks.	2 wks.	1m.	14m	3m.	5m.	2m.	6m.	7m.	2m.	
Venous Hum . . Distribution	. . .	. . .	. . .	R	R	. . .	R	. . .	. . .	. . .	. . .	R	. . .	. . .	. . .	. . .	. . .	. . .	. . .	
					L		RC													
Venous Hum . . . . Posture	. . .	. . .	. . .	U	U	. . .	U	. . .	. . .	. . .	. . .	U	. . .	. . .	. . .	. . .	. . .	. . .	. . .	
Venous Hum . . . . Time of	. . .	. . .	. . .	S	S	. . .	S	. . .	. . .	. . .	. . .	S	. . .	. . .	. . .	. . .	. . .	. . .	. . .	
Functional Murmur . Time of	. . .	LS	LS	LS	3 Sp	. . .	LS	. . .	LS	. . .	LS	. . .	LS	. . .	. . .	. . .	. . .	. . .	. . .	
		2 Sp	in M	in M	P		P		M											
Functional Murmur . . Distr.	. . .	BH	BH	BH	P	. . .	3 Sp	. . .	BH	. . .	P	. . .	P	. . .	. . .	. . .	. . .	. . .	. . .	
		M		P			M		P		BH		3Sp							
									A											
Functional Murmur . . Posture	. . .	R	R	R	R	R	R	. . .	R	. . .	R	. . .	R	. . .	. . .	. . .	. . .	. . .	. . .	
Anemia . . . . . per cent.	65	50	60	70	90	88	70	92	77	94	70	74	U 61	71	70	80	83	83	80	

TABLE 2.

CHILDREN OVER ONE YEAR.

	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Number of Case															
Age	16m.	18m.	19m.	20m.	2	2	2	2½	2½	2½	2½	2¾	2½	3	3½
Venous Hum . . Distribution	. . .	. . .	R	R	R	R	R	R	R	. .	R	R	R	L	R
			L			EC		L	LC		RC	RC	L		R
						SN			RC		L	LC			RC
						L						SN			
Venous Hum . . . . Posture	. . .	. . .	U	U	U	U	U	U	. . .	. . .	. . .	. . .	U	U	U
Venous Hum . . . . Time of	. . .	. . .	S	S	S	S	S	D	. . .	. . .	. . .	D	S	S	S
			D	D	D	D	D	D	. . .	. . .	. . .	D	D	D	D
Functional Murmur . Time of	. . .	. . .	LS	LS	LS	LS	. .	LS	LS	LS	LS	LS	LS	LS	LS
			3Sp			P		P	P	P	P	P	P		3Sp
Functional Murmur . . Distr.	. . .	. . .	LES	3 Sp	P	BH	. .	BH	4Sp	P	3Sp	4Sp	P	3Sp	P
			M			1/2 M		M							
Functional Murmur . . Posture	. . .	. . .	R	R	R	R	. .	U	R	R	R	R	U	R	R
Anemia . . . . . per cent.	80	75	75	85	88	90	78	70	55	92	75	60	100	55	U

EXPLANATION OF ABBREVIATIONS.

In relation to posture "R" means recumbent and "U" upright. The upper letter in the column indicates the point of **maximum intensity of the sound.**
Distribution of Venous Hum: R.—Right side. L.—Left side. R. Cl. and L. Cl.—Under right and left clavicles. S. N.—Supersternal notch. M.—Manubrium.
Distribution of Functional Murmur: P.—Pulmonary Area, left interspace close to the sternum. M.—Mitral area. A.—Aortic area. B. H.—Body of heart (the portions of the heart not described under valve areas). 3 Sp.—Third left interspace within the parasternal line.
The time of the murmur is indicated by the abbreviations: S.—Systolic. D.—Diastolic. L. S.—Late systolic.

showed a hemoglobin percentage of 65 per cent. without either hum or murmur. The youngest child included in this series was two weeks of age, and in this case, both the hum and the murmur were noted. Four of the others were under six months of age. In the seven breast fed children there were no venous hums present. One child, who had recently passed through a severe attack of measles, had a functional murmur. This child had a hemoglobin percentage of 61. The hemoglobin estimates in the remaining cases were 70, 71, 80 twice and 83 twice.

The point which we desire specially to emphasize in this comparison, is the fact that, in the breast fed children, although in two instances the hemoglobin percentage was as low as in the children showing murmurs in the other set, there were no murmurs present. On casual observation, the condition of nutrition of some of the foundlings seemed quite as good as that of some of the breast fed children. On closer inspection, however, the former were seen to be more apathetic, their muscles more flabby and their general tone much lower. These differences in the condition of tone were striking. The mild anemias were about the same in the two sets; therefore, we are inclined to believe that the murmurs recognized were not dependent on the associated anemia, but rather on the differences in nutrition.

In the fifteen children over one year of age, the venous hum was found eleven times and the functional murmur thirteen times, and in two instances, the murmur was present without the hum. The venous hum, in these cases, with one exception, was continuous and in this one instance it was heard only during systole.

The hemoglobin percentage varied from 55 to 100 and, in the instance in which it was 100, both the venous hum and functional murmur were heard.

These observations are not in accord with the investigations which have been made. As intimated in the beginning of our paper, functional murmurs are almost universally stated to be absent under three years of age. One exception to this statement appears in a communication by Rheiner.[2] He says that he believes that functional murmurs, though unusual, do exist before the second half of the fourth year and that he has heard soft, inconstant murmurs in the pulmonic and mitral areas in apparently healthy infants in the first year of life, for which he has found no satisfactory explanation.

In reference to this subject, Holt[3] makes the statement that "accidental murmurs may be due to anemia and other blood conditions and, although not so common as in older patients, they are by no means rare even in infants."

W. L. Johnson[4] makes the statement that he has "seen two cases of febrile murmurs in young infants."

With these exceptions, we have found no reference to their existence except as very unusual manifestations prior to the third year.

DISCUSSION.

DR. JOHN LOVETT MORSE, Boston, has tried to obtain information regarding the size of the heart in children, and has not been able to find anything satisfactory. According to his experience, the right border of the heart in infants up to two years of age is from one to two centimeters to the right of the right border of the sternum. Functional murmurs are very common in infants, and he believes that in many cases a murmur can be heard at the upper part of the sternum if the head is held backward.

DR. LOUIS C. AGER, Brooklyn, N. Y., asked whether the heart of the young infant is usually displaced much to the left in intestinal dilatation. His experience has been that it is crowded directly upward, but not much to the left.

DR. R. B. GILBERT, Louisville, said that there ought to be a book on anatomy giving the structures of the various organs in young children. The various text-books on this subject are wholly misleading, and on that account he believes that we have all experienced difficulty in mapping out the heart in cases of suspected cardiac affections in infants. The same is true in regard to the caliber of the bronchial tubes, and there are a number of anatomic points bearing on diagnosis which show distinct variations in the child as compared with those in the adult.

2. Correspondenz-Blatt f. Schweitzer Aertze, December, 1903, p. 769.
3. Text-book on Diseases of Children, second edition, 1903.
4. St. Louis Courier of Medicine, December, 1903, p. 383.

CONGENITAL DISLOCATION OF THE HIP.

AN ARGUMENT CONCERNING THE METHOD OF ITS TREATMENT.*

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There is a line of argument concerning the method of treatment of congenital dislocation of the hip, which is to-day being forgotten. I desire to review it because it opposes the reduction of the dislocation by any kind of forcible manipulation, and perhaps will tell against manipulation where but moderate force is used.

In 1899 I reported, at the New York meeting of the American Orthopedic Association, thirteen manipulative reductions; of these one is an anatomic and functional success, one is probably an anterior subluxation because of interposed capsule between the head and acetabulum, one was an anatomic success, but became ankylosed after an exploratory incision and consequent infection. Two of these have been verified by very recent, or comparatively recent, examination. The ankylosed one has passed from observation. There is nothing to add to the statement then made of the failures to maintain reduction in the other cases.

The previous year, 1898, at the Denver session of the American Medical Association, I reported, as part of a general report on the work I had been able to do, the case of a girl, 6 years old, with both hips out, on whom the manipulation plan apparently succeeded, but really failed. A second attempt again apparently succeeded on one hip and again really failed, and on the other hip the failure was a frank one. In this case I finally did arthrotomy and found that, in the joint in which the second attempt had apparently succeeded but had really failed, the interposed capsule, and the impossibility of putting the head through the narrow part in the capsule, was the cause of the failure; in the other joint the same obstacle existed and the capsule was full of bloody synovia, showing that the manipulations had been forcible and fairly well directed. Both hips were reduced by arthrotomy and the child left the hospital with each *in situ*, but her condition and whereabouts are not now known.

Since this operation, which was done in 1898, I have made no attempts, save one, at manipulative reduction, but have, instead, done the operation by arthrotomy in all instances.

* Read at the meeting of the American Orthopedic Association, Atlantic City, 1904.

As regards the manipulative method, I am sure that Lorenz told the whole truth when he stated that the obstacle to reduction was the narrowed part of the capsule just at the posterior and superior or superior part of the acetabular rim. If the opening, at this narrowed part, is big enough to permit the head to pass, reduction can be accomplished by manipulation, and may be maintained if the acetabulum is deep enough. I have in two instances done this, I know. In the 28 cases in which I have done arthrotomy, and in which I have explored the narrow part of the capsule by my finger, and so know its size and the strength of its walls, there has been but one case in which the passage of the head would have been possible. I am not too dogmatic when I say that no possible force could have put the femoral heads through the narrow part of the capsule in any of the other cases. One possibility, and 27 impossibilities!

Now what happens when attempts are made to accomplish this impossibility? Lorenz has reported plenty of fractures of the femur and one each of the pubis and of the ilium, and other operators have done the same.[1] Lorenz reports seven cases of paralysis out of 400 odd operations, but Taylor,[2] looking carefully for the condition, finds eleven cases in less than fifty operations, by various operators, including, I believe, Lorenz himself. While Taylor states that most of these cases recover, the uncertainty of the result is patent to all who have had the misfortune to injure a few major peripheral nerves. It certainly is an accident that can not be disregarded. My own contribution to the casualty list is the report of a case of Lorenz's own, of rupture of the capsule of the hip joint, distal to the constriction, and the thrusting of the femoral head out among the muscles of the thigh. While only one case was shown to have had this accident, still, from the similarity of the clinical conditions, I believe another had it, and it is not in the least impossible or improbable that it occurs in very many cases, especially in the class called "anterior transposition." Finally, on all sides one finds the absurdity of the term "bloodless" pointed out, and the reference to the lacerations of muscles, the extravasations of blood and hematomas. And last of all, Lorenz has reported one case of gangrene of the whole lower extremity.

These accidents must make any one who is not an enthusiast, or a special pleader, stop and think. One must say that to justify the exposure to such risks the percentage of successes, anatomic and functional, must be high, so that the benefit may, in the opinion of all, outrank the possible harm.

What is the percentage of successes?

From what we have seen of the Lorenz results, scattered between Boston and San Francisco, we can not believe that he ever really got good anatomic results in about half of all his cases. I am told that Wolff's claim was for only 25 per cent. of anatomic repositions, and Ridlon, in the most recent pronunciamento, claims only 10 per cent., though he hints at 20 per cent. Is this enough?

One hundred children are exposed to fractured bones, injured nerves, lacerated muscles, torn capsules and ruptured blood vessels. Ten out of the one hundred may expect to get the prize sought. Sixty out of the one hundred may get the doubtfully "good result" of an anterior transposition. Thirty children out of the hundred are perhaps to be considered fortunate if they get nothing.

In all seriousness I declare that the percentage of successes is not enough to warrant the risk, and I claim that the percentage of successes is not enough to justify the method apart from the risk. I am perfectly ready to subscribe to the satisfaction, for all parties, parents, patient and surgeon, which comes from a perfect anatomic and functional result, for I have experienced that satisfaction. But I deny that there can be any special satisfaction in the "anterior transposition," the result that has to be dubbed "good" in quotation marks, the result that still leaves a short limb and a limp, the result that in its failure may only suggest the quotation from Bret Harte, "He done his level best," as an excuse for the surgeon.

Ridlon quotes the earlier statistics of the operation for carcinoma of the breast, an ultimate mortality of 90 per cent. to excuse the 90 per cent. of failures to get anatomic results in congenital dislocations. But the 90 per cent. ultimate mortality in carcinoma of the breast was not satisfactory to surgeons, and methods had to be devised to lessen it. That they have been devised is shown by Kocher, who now quotes 42 per cent. of the cases sound three years after operation. The same dissatisfaction belongs to the results in congenital dislocation of the hip. We are bound to improve the methods of eliminating the risks, which are too many and too great and too awful. We have got to increase the number of cases in which the head is really and honestly put into the acetabulum, the cartilage of the head in actual contact with the cartilage of the socket. We are under the obligation of improving the methods for making this actual reposition permanent. In brief, we must improve in every particular the quality of the results we offer the people in these cases.

If we, as orthopedists, read what general surgeons teach and practice concerning the treatment of traumatic dislocations we shall see that they all deprecate the use of undue violence. Manipulation must be based on the most accurate knowledge of the mechanism of dislocation, and must be restricted to reduction without adding to the trauma. To accomplish this the dislocated bone must traverse, in its return, the path it made when it was displaced. Never must it be ground through a new path. If reduction is not possible by moderate force and in a reasonable time, an incision is imperative to permit the path to be cleared, the reduction to be done and the parts to be restored to the approximate anatomic relations.

No general surgeon to-day would countenance the use of extreme force in the treatment of an old unreduced traumatic dislocation. Moderate force, if it promises success or attains it, is advised, but extreme violence or prolonged efforts are wrong. In the light which an incision lets in otherwise insuperable obstacles are cleared away. In no instance of a recent or an old dislocation would a general surgeon attempt to jam a too large bone through a too small hole, and the passage of the femoral head through the constriction of the capsule in the case of the congenital hip dislocation, he would recognize, in the great majority of cases, as an impossibility.

If we turn to fractures, the advice and practice is the same. When the inside conditions of a fracture are such that satisfactory replacement of the fragments is impossible from the outside, the general surgeon makes an incision and deals with the fragments immediately.

1. Davis: Am. Jour. Ortho. Surg., February, 1904.
2. Am. Jour. Orth. Surg., February, 1904.

I do not forget that as orthopedists, we are teaching much to the general surgeon, and that we shall probably teach more; but we must be careful that we do not, in this instance, abuse his confidence and so invite him to criticize; for the general surgeon knows that the trauma of an aseptic incision is practically nothing in contrast to the injuries recited as incidental to the forcible manipulative method. The incision is less than that required for an appendectomy, less than that required for a nephrotomy, less than that required for an intra-abdominal shortening of uterine ligaments, less than that required for a herniotomy, less than that required for a lithotomy, less than the admittedly often necessary exploratory celiotomy. If the general surgeon, the world over, would not balk at this little incision, why should we? Or, if those of us who do some general, as well as some orthopedic surgery, would not shy at incisions for some objects, why should we do so for other objects?

If I am not afraid to open the knee joint to take out a floating cartilage—and I am not afraid to do this—why should I be afraid to open the hip joint to clear away the obstacle between the acetabulum and the femoral head?

I really do not believe that the definiteness of that obstacle is appreciated or else this question would not be necessary. In the case of a child who had a congenitally dislocated hip, who had never walked and who died of pneumonia sequent to measles, I secured the os innominatum and the whole of the limb. Before the child's death I had tried a manipulative reposition, using carefully regulated force, and apparently had succeeded; that is, the head went with a hop and a click to some place near the acetabulum. A week after this, however, reluxation had occurred. I then definitely reduced through an incision, and while in the splint the fatal illness supervened. The necropsy of the hip joint showed that my incisional reposition had not been permanent, the femoral head was posterior and superior to the acetabulum and the incision in the capsule had healed so perfectly that it could not be found, so that the original local conditions were restored. Now with all of the tissues removed from the bones except the capsule, and able to get a thoroughly good hold of the parts and to guide my efforts by sight, I was still unable to put the femoral head into the acetabulum. At the present time I am fairly familiar with the feeling gained by thrusting the forefinger down into the constricted part of the capsule after the joint has been opened, and in the operation which was done on this child in life the constricted part was not different from what it has been in other children, nor was it different after death, when I examined the joint. I am stating a fact when I say that no one in this world could, by manipulation alone, have put that femoral head into that acetabulum before death or after death, yet the child was but 10 months old and had never walked. In the 28 cases in which I have opened the joint and put in my finger, I have found one case that could surely have been reduced by manipulation, but only one. In all the others the femoral head was too big and the constricted part too small for the one to go through the other. It is literally the case of the camel and the needle's eye.

If this disproportion is such as I have described it, and I know that it is so; or if it is half as great as I have made it out, and it certainly is that; if it is only so bad as to make anatomic reduction impossible in from 75 per cent. to 90 per cent. of the hips, why submit that number of hips to the forcible manipulation now in vogue? Why follow an inexact and vulnerating method which gives a small percentage of anatomic reductions, when we have at hand a simple and exact surgical method which will permit the reduction to be definitely accomplished in practically all the cases that are of suitable age?

Of course if we are to save these cases, irreducible by manipulation, from the risks of forcible manipulation, we must save all, for no one can tell, *a priori,* which case is to prove reducible and which is not; and that will mean that all congenitally dislocated hips shall be reduced by arthrotomy, so that the operator knows just what he is doing, does what he wishes, and does not do what he does not wish. Moreover, it means that all hips, in the suitable ages, shall be definitely reduced, the surgeon will actually put the two parts together, and, so far as the conformation of the parts permits, they will stay in that relation. If, however, the parts are so malformed that a reposition which shall be stable is not possible, there will be a reluxation or a subluxation, possibly an anterior one. This is just as likely to occur in the arthrotomy reductions as in the manipulative reductions, and no more likely. It will be a late result, and the mechanically inevitable result of preexistent anatomic conditions; it will not be the result of an inexact and incompetent method. I much prefer to be able to say to parents that I have put their child's bones together properly, but that the bones are too misshapen to remain together, than to have to say that I could not put them into any anatomic relation whatever.

Finally, by the arthrotomy method the patient will have been saved the exposure to paralysis, which comes at the rate of from 2 to 20 per cent of the cases; will have been spared the risk of a broken leg or pelvis; will not have had the contusion and lacerations of the muscles about the hip which result in ecchymoses and hematomas and possible gangrene; and will have been exposed only to the one danger of sepsis, the possibility of which should not be greater than, nor as great, as it is in clean appendectomies.

I do not see what is gained for the children by the present method of forcible manipulation except for that small proportion, 10 per cent., that gets the anatomic and functional perfect result; and this result could be gained more easily and with less risk by the arthrotomy method, so that the value of this 10 per cent. is not its face value. Nor can I see any reason in an argument against an aseptically made incision to clear away the obstruction and permit the easy access of the head to the acetabulum, a goal that is so strenuously struggled for in the manipulative method. It seems to me to be sensible to really reduce the dislocation when we set out to do so, and choosing a more difficult and devious instead of an easier and more direct method is very much like making a feat of a surgical procedure.

My own list of cases, which I have done by arthrotomy, is a modest one, and would not have been reported until it was longer and older had it not seemed to me to be right to speak of this question now.

There have been 28 hips in 20 children submitted to reduction by arthrotomy. The oldest was 11 years, the youngest was 10 months. Between these ages there were 3 in the second year of life, 3 in the third year, 5 in the fourth year, 2 in the fifth year, 1 in the sixth year, 1 in the seventh year, 1 in the eighth year, 1 in the ninth year and 1 whose exact age is not known, but, as I remember, it must have been about 6.

In each instance the femoral head has been put into the acetabulum, cartilage to cartilage. Seventeen hips are known to be in stable position, with the head in the acetabulum, at times varying from 2 months to 6 years after the operation. In those children who were operated on earlier in life—below 7 years—there is ample range of motion at the hip, so that they can sit down, and can go up and down stairs, and can run and jump. In these younger children there is no tendency to ankylosis. In those who were older there has been a tendency to ankylosis, which has had to be combated, or else a practically immobile hip has resulted. This may be a permanent condition or the joint may work loose, the final result depending more on the disposition of the child—for the active child will develop motion when the passive child will not—than on any condition in the hip. I have seen the same thing in the old Lorenz operation; a child whose hip remained fairly rigid, having only what we call "shake motion" for many months, would slowly work itself loose and have finally an ample practical range of motion. Eight hips are known to be sub-luxated or reluxated, and the times of observation are about the same as in the group just cited. In three hips the final result is unknown.

Some of the hips that reluxated did so, I feel sure, because of too short a time in the plaster of paris, and consequently the hips of more recent operation, where splint restraint has been continued for a longer time, seem to me to promise better results. Certainly the 12 and 18 month old cases are, at present, very satisfactory.

In two of these cases there was a slight staphylococcus albus infection of the skin incision. No case has had any infection of the deeper tissues. In one case, one of the older children, the skin of the perineum was torn and there is a paralysis of the muscles of the leg. The attempt at reduction in this child had risks which were acknowledged before the operation and the attempt was made reluctantly. It has succeeded, the head is in the acetabulum, the perineal wound has healed, but the paralysis has not yet disappeared. It is known, however, that this paralysis occurred after the accomplishment of the reduction and at the time that the knee was extended so that it is reasonable to expect it to disappear in time. With the exception of these items there has been no casualty of any kind in this series of cases.

There is still another word to be said. I took one of the anterior transposition cases of Dr. Lorenz's and tried to accomplish reposition by arthrotomy. My incision found the head in a subfascial extra-articular location and surrounded by a pseudo capsule; the cartilage on the head was eroded. The true capsule it was not possible to identify, excepting that part of it which was attached to the acetabular rim. It was very plain that, in the forcible manipulation the capsule had been ruptured and the head thrust through the rent. It is to be remembered that in the Lorenz method there is a time when he does what he calls stretching the anterior part of the capsule. At this point in the procedure the limb is wholly abducted and the head well jammed down over the acetabulum. In this position the knee is carried backward and the head lifted from the bone, the shaft being a lever and the fulcrum the side of the pelvis. Just what the act would accomplish if the head were in the acetabulum I do not know; but when the head has been pushed down past the too small opening in the capsule and held firmly against the lower part of the upper portion of the capsule, which must be stretched very tightly, it is easy to understand that a rent would not be difficult to make, and a continuation of the prying motion would carry the head through it.

The point that I wish to make is that this laceration of the capsule precludes the possibility of a successful reduction by arthrotomy. Another point is that those of us who attempt reposition by manipulation must be guided by rules analogous to those that govern taxis for a strangulated hernia. Do not attempt the procedure if another has attempted and failed. Do not push the effort beyond a certain short time. Do not use force great enough to tear any part of the capsule, for you have no way of telling what part you may be tearing, and you may not only fail of manipulative reduction, but may also spoil the hip for an arthrotomy.

TECHNIC OF OPERATION.

The technic of the operation as I have come to do it, is as follows: The child is placed on the table with a sheet, rolled diagonally into a soft sort of rope, between the thighs. The ends of this rolled sheet reach beyond the child's head and are attached to a stout ring in the wall of the room. The part which is between the thighs is wrapped with a wet sterile towel, arranged so that it lies directly under and across the ischial tuberosity of the side on which the operation is to be done. It must not lie across nor cover the genitalia. This sheet gives a safe and sufficient counter traction in case any amount of force is needed to pull the femoral head down to the level of the acetabulum.

Around the thigh, just above the knee, is fastened a skein of yarn, by a clove hitch, and another is put around the ankle in the same way. Traction on either or both of these is permissible, up to limits which seem safe, and that without injury to the skin.

A moderate pull is then made on the leg which draws the femoral head down from its usual location on the dorsum of the ilium, and brings it to just below the anterior superior iliac crest, where it is easily palpable. The incision advised by Lorenz is then made, cutting skin, subcutaneous fascia, fascia lata and finally the muscles and all in the direction of the muscular fibers, so that these are separated and not cut. This exposes the capsule and it is incised in the same direction showing the femoral head inside it. Deep retractors have been used to hold the tissues apart, but now long loops of catgut are put in either side of the incision in the capsule, and they act as retractors. In older children it is right to do a subcutaneous section of the adductor tendons close to the pubes.

The pull on the leg is now relaxed, the femoral head goes up and the gloved finger is slipped into the capsule and down toward the acetabulum. Very rarely indeed will it be able to enter the latter, though flexion of the hip relaxes the anterior part of the capsule, and so makes the opening somewhat larger. With the finger as a guide a long, straight probe-pointed bistoury is passed into the acetabulum and while the finger in the wound presses its edge downward against the lower part of the capsule the hand on the outside slowly saws the knife to and fro. The cut thus made must be close to the femur and must especially avoid the anterior part of the capsule. Care must be taken not to cut off the ilio-psoas tendon, but the incision must be ample enough to give free access to the cavity of the acetabulum.

The femoral head is again pulled down from the

dorsum of the ilium by hard traction on the leg or on the yarn skeins, or, in older children, a tackle of blocks and rope may be used to overcome the resistance of shortened muscles and fascia.

When the head is over the acetabulum it may, in some instances, be thrust into the socket by firm pressure inward over the trochanter. Sometimes this maneuver has to be combined with abduction of the leg, made while the traction is maintained, the operator pressing the while firmly on the trochanter and supplying a fulcrum so that the head may be made to travel downward and inward and jump over the acetabular rim into the socket. There is one objection to the traction, for it makes a pull on the anterior fibers of the capsule and narrows the opening, and so occasionally one finds that, after reasonable efforts, in which the capsule has probably become somewhat stretched, flexion of the hip and manipulation of the leg—the direction of the movements being guided by the finger in the joint—succeeds in slipping the head into the acetabulum without the use of force at all. In not a few instances, in young children, from two to four years old, this may be done primarily, without the preliminary pull on the leg.

In a fair proportion of these cases there is a twist in the upper part of the femoral shaft so that the neck and head look forward when the toes are pointed in the same direction. Whether this is the case or not can always be determined by radiograms, one taken with the toes pointing forward, and another with the legs rotated out. If there is the twist forward in the bone, it will be necessary to compensate for it by rotating the whole limb inward during the manipulations to direct the head into the acetabulum. Once the head is in the acetabulum the limb is put into a position of abduction of from 50° to 90° and rotated in or not as may be necessary. This position thrusts the head more firmly into the acetabulum and prevents reluxation. The two retracting cat-gut loops are now tied together to close the upper part of the incision in the capsule. The lower part of the capsule incision, by the act of reduction, has been carried so deeply into the limb that it can not be reached to be sutured. Sutures are then put in the fascia, deep and superficial, leaving space for the insertion of a cigarette drain down to the capsule. Finally the skin is sutured and then both limbs and the pelvis are put into a double plaster of paris spica. Even if but one hip is operated on, both limbs must be included in the first retentive plaster dressing.

AFTER-TREATMENT.

After forty-eight hours the drains are taken out, and if there has been no sepsis, the leg is left undisturbed for three months. If sepsis occurs it is right to reluxate to avoid an ankylosed hip.

After three months the spica is taken off, and the limb adducted somewhat and another spica put on, including only the leg of the side of the operation in the one-sided cases, but both legs in the double cases.

After another month or so this may be arranged so as to leave the foot free, and the child may then be made to walk in the plaster. After six months have elapsed the spica may be made only to include the thigh and pelvis, leaving the knee free. After eight or nine months the retentive dressing may be left off entirely.

THE TREND OF MODERN PRESCRIPTION WRITING.*

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The object of this paper is to show the trend of the physician in his prescribing at the present time. Five hundred prescriptions were carefully examined as they were received and filed in each of two of Philadelphia's best prescription stores, both of which are managed by able and energetic pharmacists, who have had collegiate training.

Five hundred prescriptions were examined in each store in order to make proper comparisons, and also to give a more general report of the type of the modern prescription.

These stores were so located that they received prescriptions from all the leading physicians of the city, and a large number of the prescriptions were from the pens of the professors and instructors on our medical school and hospital staffs, as well as a number from physicians in general practice, so that these prescriptions represent the type of prescription as written by our best practitioners in the twentieth century.

The following table gives the results of my investigation, these prescriptions all being written since January 1, 1904:

1,000 Prescriptions.	Store No. 1.	Store No. 2.	Total expressed in percentage.
Number containing chemical incompatibilities	8	5	1.3
Number containing pharmaceutic incompatibilities	10	3	1.3
Number containing therapeutic incompatibilities	1	....	0.1
Number containing 6 or more ingredients	34	16	5
Number containing 2 to 5 ingredients	347	371	71.8
Number containing one drug or preparation	119	113	23.2
Number containing only official preparations	244	240	48.4
Number containing proprietary preparations in whole or part	195	164	35.9
Number containing patent medicines	1	1	0.2
Number in which the metric system was employed	3	2	0.5
Number containing non-official preparations in whole or part	60	95	15.5
Number written correctly	328	293	62.1
Total prescriptions examined	500	500	100.0

Now let us consider these prescriptions under the various headings as classified above:

PRESCRIPTIONS CONTAINING CHEMICAL INCOMPATIBILITIES.

Only those were considered where a dangerous or objectionable compound would result from dispensing the prescription as ordered (intentional incompatibilities not being considered), and we find eight in the one series and five in the other. This is a good showing, but it would have been far better if there had been none, as in some instances the prescriber had to be notified and the prescription altered, in others a "shake well" label would suffice to obviate possible danger.

This shows two things: first, the importance of having our prescriptions compounded by competent pharmacists, who have a thorough knowledge of chemistry, and who can act as a "safety valve" when dangerous compounds are ordered, either through oversight or ignorance on the part of the prescriber. Second, the importance of every physician having a general knowledge,

* Read before the Philadelphia County Medical Society, 1904.

at least, of chemical combinations, and how to intelligently combine drugs in order to obtain the best results without forming dangerous compounds.

PRESCRIPTIONS CONTAINING PHARMACEUTIC INCOMPATIBILITIES.

This heading is of particular importance to the pharmacist, as it is his duty to dispense as elegant and palatable preparations as possible.

As in the first group, only those prescriptions were classified which were particularly objectionable or unsightly in appearance, nauseating in taste or difficult to dispense as ordered. We obtained ten from the one store and three from the other. It has been frequently said that if a physician had to take some of the "potions" that he orders, there would be a radical change in modern prescription writing.

Every medical school should give a complete course in prescription dispensing in the pharmaceutic laboratory, as this knowledge would be of inestimable value not only in framing elegant combinations, but would be of especial service to the country practitioner who is compelled to compound his own medicine.

PRESCRIPTIONS CONTAINING THERAPEUTIC INCOMPATIBILITIES.

Only one prescription was found that was particularly antagonistic from a therapeutic standpoint, and this shows that the average medical student is more thoroughly trained in therapeutics than he is in pharmacology.

PRESCRIPTIONS CONTAINING SIX OR MORE INGREDIENTS.

Thirty-four in the one series and sixteen in the other contained six or more ingredients, and it was a noticeable fact that the majority of these prescriptions were written by a certain few physicians who had drifted into polypharmacy. It is pleasing to note that this tendency is gradually dying out, and we hope that the day is not far distant when the old "shotgun" prescriptions, of from twelve to fifty ingredients, will be framed as curiosities of by-gone days.

Another noteworthy fact is that these prescriptions are mostly written by the very old practitioners. If this improvement had only occurred years ago, homeopathy would not have gained its present foothold; then, again, the system of prescribing as used in our best hospitals is so designed as to use only single drugs or preparations, and to make these as elegant and palatable as possible—a good step in the right direction.

PRESCRIPTIONS CONTAINING FROM TWO TO FIVE INGREDIENTS.

This constitutes the great majority, almost three-fourths, of the prescriptions, and shows a great improvement over the prescription of a century ago, when it was the popular belief that the greater the number of ingredients the greater the chance of cure. This rule would apply where ignorance in diagnosis exists, as by this theory the greater the number of ingredients present the more likelihood of administering something that will be of service. A good example of this is the old Warburg's tincture; the original formula as directed by Dr. Warburg contained the old *"confectio damocratis."* This was a complex astringent confection containing opium, and originally had sixty-four ingredients, many of the constituents being unobtainable at the present day.

PRESCRIPTIONS CONTAINING ONE DRUG OR PREPARATION.

It is pleasing to state that the greater number of these prescriptions were written by our most able practitioners, men who are prominent in medical teaching, and while they do not represent quite one-fourth of the total number, this is not a bad showing.

PRESCRIPTIONS CONTAINING ONLY OFFICIAL PREPARATIONS.

Approximately one-half belonged to this group, and it will be noted the very slight variation in this respect in the two series. This is likewise encouraging, and may the day be not far distant when the number will be increased still more. A point of interest observed here was that the more educated the physician the greater the use of the United States Pharmacopeia.

PRESCRIPTIONS CONTAINING PROPRIETARY PREPARATIONS IN WHOLE OR PART.

One hundred and ninety-five of the one series and 164 of the other, about 36 per cent., contained proprietary preparations, or, in other words, more than one in three prescriptions.

This is a good showing, when we consider that the manufacturing chemists employ persuasive salesmen, who visit every physician's office at stated periods and present him with a liberal supply of their "ideal" preparations, which are always "superior to any other made," and which are usually combined by a "peculiar" chemical process that enhances their therapeutic activity.

PRESCRIPTIONS CONTAINING PATENT MEDICINES.

Only two of the prescriptions were for patent medicines, and one of these was written by an "osteopath," so that we are only responsible for one, and this was one too many. How any regularly qualified practitioner of medicine could so disgrace himself and his profession as to order patent medicines is beyond my comprehension.

PRESCRIPTIONS IN WHICH THE METRIC SYSTEM WAS EMPLOYED.

Only three of the one series and two of the other demonstrate the fact that the metric system is but little employed at the present time, and its use does not materially increase, as my own experience in the retail drug business for a number of years corroborates. One fact is observed, when a practitioner uses the metric system, he uses it exclusively. It is to be regretted that the profession does not adopt this system and use it exclusively, as it is simpler, more scientific and in every way preferable to our present system of weights and measures. The leading medical schools give their students a thorough training in this system, and teach them how to convert the various denominations into the English system, and vice versa, but after leaving the college halls this is all thrown aside.

PRESCRIPTIONS CONTAINING NON-OFFICIAL PREPARATIONS IN WHOLE OR PART.

In this group are classified prescriptions containing commonly used preparations which are not recognized by the United States Pharmacopeia, but which can be prepared by any pharmacist, such as elixir of iron, quinin and strychnin. In this group we have sixty in the one series and ninety-five in the other, showing considerable variation, a noteworthy feature being that the series that yielded a large number, thirty-four, of the polypharmacy type of prescription, yielded the small number, sixty, of this type, while the other series that yielded sixteen of the former yielded ninety-five of the latter. A proportionate comparison.

NUMBER OF PRESCRIPTIONS WRITTEN CORRECTLY.

The criticisms in prescription writing applied to the

endings used in designating the drugs or preparations and the use of the proper official names as embodied in the inscription, and the proper phraseology as applicable to the subscription. As a rule, the prescriptions of the teaching class of practitioners were correctly written to a great extent, while those of some of the regular practitioners were carelessly written, and those of others showed a marked defect in the knowledge of prescription writing. This was especially noticeable among the prescriptions of the more recent graduates. Less than two-thirds were correctly written, and this is largely due to the deficient training in this important subject in the average medical school. Several of the prescriptions were written by a young practitioner who received the highest average among 400 men at a recent examination of the state medical board, yet every one of his prescriptions showed errors in writing and in combining drugs. This merely shows that his training was deficient in this important subject.

IMPORTANCE OF PROPER TRAINING IN THIS BRANCH OF MEDICINE.

Now, who is responsible for this deficiency? Is it the teacher, the means at his command and time allotted for teaching the subject, or the student, that is at fault? The teacher is often a physician, who has never received any practical pharmaceutic training other than the "smattering course" that he received as a medical student, and, as a rule, on account of limited training and lack of interest, he follows the same rut as his predecessor; as a consequence, the pharmaceutic laboratory is deficient in its equipment and very unattractive.

Because of these facts, officers and trustees consider this branch of medicine unimportant, and the student, not realizing the value of a pharmaceutic training, completes the course ignorant of its many valuable points, and usually not until he reaches the senior year and commences to prescribe does he fully realize his deficiency in the knowledge of the mode of preparation, appearance, administration and effects of combining drugs, the very ammunition he is to use in firing his gun of knowledge to combat disease. It is not, however, until as a physician, authorized to use blank and pencil, and brought face to face with the patient, that he most seriously and keenly feels the sting of his pharmaceutic ignorance; tries to formulate a palatable mixture and fails, expects to find a nice clear solution when he calls, only to find one with an unsightly and often dangerous precipitate. It is now after repeated failures that the horizon is filled with attractive-looking proprietary preparations, and these are substituted for the official drugs, because the label states that they are specific for the disease under consideration. As a result, this habit once established is continued through life.

Three of the above prescriptions were written by "osteopaths" and they all showed utter ignorance of the first principles of prescription writing. This should be a warning to us, because, if osteopaths should receive recognition in the various states they will attempt to prescribe medicines and to treat all diseases, not limiting themselves to their own particular methods. The medical profession should be aroused to this matter and take action before it is too late. In the past few months several scathing editorials have appeared in the daily press relative to the large number of incompetent practitioners who are turned out by our medical schools, and the state board suggests an investigation of the present methods of teaching and the adoption of a more comprehensive curriculum.

However, in looking over the examination results of the various state boards as compiled in the Aug. 13, 1904, number of THE JOURNAL of the American Medical Association, we find that the percentages of failures from the Philadelphia medical schools vary from none to 8.6 per cent. for the year 1903, and this was the most satisfactory showing of any state in the series, when one considers the number of students examined.

The total number of candidates examined in the thirty-seven states was 5.027. They represented 151 American colleges, 8 Canadian institutions, and there were some representatives of foreign schools. Of the whole number examined, 4,312 passed and 715 failed. The percentage of failure was 14.2, but of the Philadelphia students but 5.48 per cent. were found wanting. This was a lower percentage than was shown by any other state or by the outsiders. The percentage of failures from New York was 7.12; of Boston, 7.28; of Chicago, 8.18; of Washington, 18.84; of Baltimore, 22.70; of Louisville, 27.67; and of St. Louis, 32.67.

Another remarkable showing is, that of the 4,312 successful candidates, 9 per cent. were from the Philadelphia schools, and only 3.2 per cent. of the 715 failures can be charged to this city. These figures demonstrate conclusively that the medical training given by the Philadelphia schools is thorough and comprehensive.

Again, at the recent examination of a state medical board the following are two of the questions asked under materia medica:

1. Name the drug of which pilocarpin is the active principle, and give the dose of the tincture that would be equivalent to 1/20 grain of pilocarpin.

In the first place, there is no official tincture of pilocarpus, and hence no recognized tincture of definite strength, and the majority of our standard medical works do not mention any strength for the tincture, and those that do show a variation in strength, so that this question is unanswerable. Books like those of Remington, Caspari, Coblentz and United States Dispensatory on pharmacy, and of Shoemaker and Potter on materia medica, do not mention any strength for the tincture, and, granted that the strength was given, the yield of alkaloid varies from 0.25 to 2 per cent. in different lots of the drug, as all the books state; therefore, how in the world can a student answer such a question?

2. Give the dose of tincture of nux vomica equivalent to 1/30 grain of its principal alkaloid, and name two official preparations into which this active principle enters.

This is a more desirable question, but even here very few students can remember the strength of the tincture as indicated in the United States Pharmacopeia, and for the second portion of the question, a number of the students gave the salts of strychnin instead of the preparations asked for. After conversing with a number of the candidates as they came from the examination room, I found that not one answered these questions correctly.

If the medical boards desire less failures, let them ask: First, questions that can be answered; and, second, questions that when answered are of some practical value, and not unanswerable and unusual questions that no one could answer intelligently, even if they had access to the text-books. The object of state examining boards is to determine the fitness of candidates to practice medicine and surgery, and this can only be done by asking practical and useful questions, that every well-

educated physician should be able to answer intelligently, and not by asking unanswerable or unusual questions, the knowledge of which would be of no practical value, and questions which examiners could not answer themselves without consulting the proper books.

CONCLUSIONS.

The above investigation warrants the following conclusions:

1. That the trend of modern prescription writing is in favor of proprietary preparations.
2. That the use of polypharmaceutic preparations is diminishing to a great extent, and their use is chiefly confined to the older practitioners.
3. That the number of incompatibilities observed is greater than it should be.
4. That the metric system is but little employed at the present time in prescription writing, a condition to be deplored.
5. That over one-third of the prescriptions are incorrectly written, and this is especially noticeable among the younger practitioners.
6. That certain non-official preparations are quite popular, and that some of these deserve admission to the United States Pharmacopeia.
7. That the more educated the physician the greater the use of the pharmacopeial preparations, and the greater the tendency to simple instead of complex, nonscientific, polypharmaceutic and proprietary preparations.

Clinical Reports.

TETANY AND LARYNGISMUS STRIDULUS ACCOMPANYING MALNUTRITION IN AN INFANT.

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MENLO, IOWA.

Rarity of Cases.—The relative infrequency of tetany in infants has prompted me to report this case. That it is rare in this country is shown by the report of Griffith,[1] who was able in 1895 to collect but 50 cases, 38 of which were in children. Sanger Brown[2] was able to find but 100 cases in this country up to 1898. He does not state the age at which it was found to occur most frequently.

A careful search of available literature fails to reveal a report of any cases of the disease occurring in infancy, which hardly corresponds with the observation of Holt. It is conceded that the disease is often accompanied by laryngismus stridulus, and usually accompanying rachitis or marasmus. In the following case there was a condition of marked malnutrition of a few weeks' duration only, and only a very few symptoms of rachitis were to be seen before the final termination.

Patient.—J. C. G., male, born May 6, 1904, weight at birth 7½ pounds.

Family History.—Both parents are apparently in good health. The patient was their fourth child. One child died of scarlet fever some few months ago. The other two children, a boy of about 7 and a girl of about 9, are both bright and healthy.

Previous History.—When this child was born it was tongue-tied, which was clipped about six weeks later. Mother states that she has always had plenty of milk in both breasts to nourish the other children well, but at the lactation just previous to this she thought the supply in the left side was not so good. The milk from left breast at present is poor in quality, showing low percentage of fat, and on standing, separates into opaque and transparent portions. From June 17, when the frenum was clipped, until September 10, the child did not come under my observation.

Clinical Course.—During my absence from home for a few days early in September, a fellow practitioner was called in on account of several superficial ulcerations presenting on the scalp and behind each ear which were slow in healing. There were also several small sores around the edges and end of the tongue, and on the corresponding buccal and labial surfaces. On September 10 I was hurriedly called on account of a spasm the child had just passed through. I found the child lying quietly in the mother's lap, uttering a low feeble whine, mouth wide open, eyes partly closed, skin bluish, features pinched and peaked, lying apparently oblivious to all surroundings and offering no resistance to manipulations. Temperature, 101.4 (axilla); pulse about 125 and weak. The mother, in describing the spasm, said that the child's face became blue, the head was thrown back, the limbs became stiff and rigid. Respiration ceased entirely for a brief time, then began again, and the normal color gradually returned to the skin.

The mother stated that four or five weeks ago the child weighed 12 pounds; present weight 9. He takes the nipple vigorously, but after three or four efforts drops it and begins to fret and cry; on changing to the other breast he nurses all right and seems to be satisfied. Suspecting poor quality and deficient quantity of milk to be largely the cause of the present trouble, an immediate change was made to a 5 per cent. preparation of cow's milk. The sores on the tongue and lips prevented the use of the rubber nipple, so we made use of an ordinary medicine dropper until he could grasp the nipple. The bowels were moving two or three times a day, but contained particles of undigested food. An examination of the lungs was negative.

September 11: Temperature 101.4; pulse fair; slept quite well; takes bottle some; lungs negative; no distension of abdomen.

September 13: Temperature 100.3; pulse strong; gave strychnin in 1/300 gr. every four hours since first visit. Bowels moved three times. Child seems more lively, and takes more notice of things going on about him; cry is stronger, urine scant and of reddish color. Glottic spasms have been occurring each day at intervals of from forty minutes to three hours.

September 15: Temperature 100; some curds passing in stools; some distension of abdomen; lungs negative.

September 19: Temperature 100.2. Until this morning the child was doing nicely, except for some tympanites, which was relieved by enemata. This morning the mother noticed slight twitching of fingers and forearm on left side. (He had all the time held both thumbs flexed into the palms and fingers clasped over them, so that where the index fingers crossed the thumbs there appeared a small ulceration. We had previously secured the thumbs outside the fingers to allow these to heal.) When I arrived at the house both forearms were involved in the muscular spasm, and the toes of both feet were markedly flexed. The lungs were negative, and the glottic spasms were less frequent and milder. Color of skin was even better than when last seen.

September 20: Temperature 100. Tremor is about the same, but has not had any glottic spasms since night before. Present weight 9½, showing a gain of a half pound. Has had no general convulsion.

September 22: Temperature 101. Tremor was less yesterday, but has increased to-day; some sore throat; a fine, elevated, glistening eruption has appeared over upper part of chest, shoulders and neck. Skin is quite red with a few minute pustules. Small ulceration appeared on umbilicus. Sweats a great deal. Bowels moved three times.

September 24: Temperature 101. Tremor about the same; color of skin better; eruptions disappeared; umbilicus better; profuse sweating, especially of head. Some abdominal disten-

1. Holt's "Infancy and Childhood."
2. Sanger Brown: Med. News, July 5, 1904.

sion; ear and scalp wounds healing nicely and urine is now quite clear. Sleeps well; no undigested food in stools. Has had slight cough for past thirty-six hours; lungs negative.

September 27: Temperature 104. Eruption has reappeared on chest and neck; cough has disappeared; some mucus in throat; bowel movements from two to four a day; quite marked abdominal distension; respiration somewhat rapid; a few fine subcrepitant râles found in upper lobe of right lung posteriorly; left side negative; tremor present as before.

September 27: Temperature 107.4 (axillary); marked dyspnea; pulse rapid and weak; tremor has disappeared; skin dark; coarse râles over all portions of both lungs; has occasional glottic spasm; liver enlarged downward three inches. After use of cold towels for from fifteen to twenty minutes, temperature was 103; cold was discontinued, and an hour later it had dropped to 101. When temperature fell, the tremor reappeared, in hands first and finally in feet.

September 28: 9:00 a. m. Temperature 101; has risen to 103 once during night; no more glottic spasm; respiration is rapid and very difficult; condition of lungs unchanged. Tremor of upper extremities as before, and mild in toes and plantar muscles.

The child died at noon, the tremor subsiding only immediately before death.

Treatment.—The treatment of this case was, from the beginning, an effort to supply a better quality of food. Working on the theory that the disease is of gastrointestinal origin,[3] the aim was to rid the intestinal canal of its toxin-producing material by administering at the beginning a full dose of calomel, and each subsequent day three or four one-tenth grain tablets, so as to produce from two to four free evacuations each day. To supply the lack in food a good quality of cow's milk was given at alternate feedings. Pure cream and saccharum lactis were added as needed.

Comments.—The theory of auto-intoxication is advanced as the determining cause of tetany, as given by Strong,[4] Loebl[5] and Moynihan[6]-Peters[7] of Berlin, in an excellent discussion of the pathologic anatomy, as a result of a histologic examination of eight cases, says that it is an organic affection, the lesion consisting of an interstitial neuritis or ganglitis, the process involving the nerve roots, innervating the parts that are the seat of the muscular spasms. This over-excitability of the motor nerves is the result of mechanical compression of the motor fibers in the root regions, by the products of the inflammation.

That tetany in infants is nearly always preceded by some disorder of nutrition is very good evidence in favor of the auto-intoxication theory. Rachitis is a common forerunner of the disease, and while the case just detailed presents a few of its symptoms, it is hardly enough to say that, had the child lived six months longer he would have developed the disease in a well-marked form. It might be added that antipyrin and bromid of sodium were both used in this case, with apparently little effect. I would also call attention to the fact brought out that the general condition of the child was improving up to the development of the lung complication, as evidenced by the gradual healing of the ulcerations about the head.

CURE OF A CASE OF SPINA BIFIDA.

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History.—A woman, aged 40, in her ninth labor, which was tedious but uneventful, gave birth, Dec. 28, 1901, to a 9-pound boy, fat and well developed, except for a spina bifida at the fourth lumbar vertebra. The tumor was sessile, rather larger than a hulled black walnut. When the child cried the sac was distended, but when the child slept it was flaccid. I wanted to operate at once, but failed to get the consent of the parents. May 15, 1902, when the child was almost 5 months old, I was notified that the tumor had ruptured. The parents then realized that a crisis had arrived and were willing to have anything done. Summoning Dr. L. R. Heath, who kindly assisted me, we repaired to their home, two miles in the country. I found the child greatly emaciated, weighing less than 6 pounds, although nursed by the mother. The tumor had grown to about ten inches in circumference, but had now collapsed to two-thirds of its former size.

Operation.—Ether anesthesia was used and owing to the extremely feeble condition of the child and the constant fear that it would collapse, the operation was hurried at every point. With scissors I cut away three-fourths of the sac, which contained bloody serum. No floating nerve filaments were seen, but some were imbedded in the serous membrane. I separated the serous membrane and, involuting it, I packed it into the bony canal, which was large enough to admit the end of my little finger. Using silk sutures, I carried the first row from the edge of the muscle through the involuted mass and out through the edge of the opposite muscle; this closed the canal. I then introduced another row of sutures, embracing a mass of muscle and fascia on each side. Although there was considerable tension, a mass was raised up over the site of the canal. The thinner side of the sac wall was trimmed close to the sound skin, and the whole covering was made from the thick wall, which acted somewhat as a pressure pad over the site of the canal.

Result.—The child, seeming more dead than alive, was placed between hot blankets. The fontanelle was greatly depressed, and the pulse was imperceptible. The next morning reaction had taken place. The temperature did not reach 100 at any period of convalescence. The child was weaned and put on a modified cow's milk diet. The wound healed by first intention, but later, for fifteen months, from time to time, a deep stitch would suppurate out. The child began to take food freely and has continued to thrive. He walked in his nineteenth month, and is now in his thirty-sixth month, weighs 32 pounds, and is in perfect health. I believe the result was due to the complete closure of the canal.

3. Fleiner: Abst. THE JOURNAL A. M. A., vol. xl p. 1114.
4. Strong: Med. Record, Nov. 29, 1902.
5. Loebl: Abst. THE JOURNAL A. M. A., vol. xli, p. 1121.
6. Moynihan: Boston Med. and Surg. Jour., Nov. 5, 1903.
7. Peters: "Pathologic Anatomy of Tetany." Abst. THE JOURNAL A. M. A., vol. xli, p. 1237.

Successful Removal of Bullet from Heart.—The bullet lodged in the rear wall of the right ventricle, and was removed by an incision in this wall after suture of the entering hole. The incision was also sutured. The patient was a woman, and, after a mild, consecutive pericarditis with serous exudation, requiring evacuation, she made a rapid recovery. The external hemorrhage from the bullet wound was slight, but the patient exhibited cyanosis and anemia, and the operation revealed that the heart was being suffocated, as it were, by the accumulation of blood in the pericardium. The pulse was only slightly accelerated. An injection of camphor temporarily restored the pulse to 80. The moment the accumulated blood was removed from the pericardium, the pulse became good and remained so throughout all the further manipulations, without a trace of indications of collapse. There was no intermission in the contractions, even when the rear wall was incised. The operation was done, under ether, by Zoege von Manteuffel at Dorpat, and is reported in the *St. Petersburger med. Wochft.* for October 29. He remarks that it is the third case of successful suture of a bullet wound of the heart on record, and the first in which the projectile was extracted. It measured 5 mm. in diameter. The heart was reached by resection of the costal cartilage and margin of the sternum through a single vertical incision. The rotation of the heart was such that during diastole the wall of the right ventricle presented at the incision and during systole the wall of the left.

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NEUROFIBRILS.

The idea that the nerve-cell protoplasm has a fibrillary content dates back to the time of Max Schultze. Histologists were, however, in doubt about the matter until Apáthy, a Hungarian scientist, with the use of a difficult and complicated method, devised by himself, demonstrated the fibrils convincingly. The method of Apáthy, however, yielded very inconstant results, and, moreover, often failed entirely in the hands of other investigators. Beside, the method was applicable only to the tissues of invertebrates, mammalian and other vertebrate tissues failing to respond to the stain. Apáthy, by his demonstrations before various anatomic societies, was nevertheless able to convince research workers in his field that the fibrils actually exist.

A search for a method which would stain the neurofibrils in human tissues was rewarded by the discovery by Bethe of a procedure which stains tolerably satisfactorily the fibrils in normal adult nerve cells. Bethe's method is also a difficult one, and one which involves the treatment of the tissues with strong reagents. It is limited further by its non-applicability to embryonic organs.

The methodology of the subject was soon further enriched by Ramón y Cajal and by Bielschowsky, each of whom invented an easy method of demonstrating the neurofibrils by silver impregnation. Each of these methods yields excellent results, and histologists have not yet fully decided as to which of the two methods is preferable. A great advantage consists in the fact that the silver methods permit of the staining of the neurofibrils at the time of their earliest appearance in embryonic tissues. The technic of the silver staining is comparatively simple, and some good work has already been done with it in researches dealing with the pathology of nerve cells.

Bethe has made some interesting observations on what he speaks of as the "primary stainability" of the neurofibrils with basic dyes like methylene blue, thionin or toluidin blue. By "primary stainability" he means the property of staining tissue in the fresh condition, or when it has been altered by dehydration only; he contrasts this primary stainability with the secondary stainability which exists after the tissue has been chemically altered, say by the action of some mordant. On staining nerve cells with methylene blue or toluidin blue, dyes which above most others exhibit neurotropic affinities, it is found that not only the tigroid masses of Nissl take the stain, but also the neurofibrils and sometimes the myelin sheath of medullated nerve fibers. In tissue dehydrated by alcohol, the myelin can be removed by treatment with xylol, and then only two substances remain which possess primary stainability. The use of toluidin blue as a staining reagent is especially to be recommended because it stains the neurofibrils metachromatically, of a different tint from that assumed by the tigroid substance.

Bethe has shown that certain reagents possess the power of destroying the primary stainability of the neurofibrils without removing the fibrils themselves from the nerve-cell protoplasm. Thus nitric acid or dilute solutions of the alkalies so change the neurofibrils that they no longer stain "primarily," though they can be stained by mordanting methods. This fact led Bethe to the idea that some substance responsible for the primary stainability of the fibrils enters into their chemical constitution normally, but can be easily split off from them. By further experimentation he found that the primary stainability of the neurofibrils can be destroyed by treatment with a dilute solution of hydrochloric acid in alcohol, though the Nissl bodies remain unchanged in their stainability by this process. The primary stainability of the latter can, however, be removed by treatment with a dilute aqueous solution of hydrochloric acid. Bethe concludes, therefore, that in each instance an acid substance, combined with the albuminous substratum, is the chemical constituent underlying the primary stainability. He therefore speaks of the "fibril acid" in one instance and of the "Nissl acid" in the other. Each acid is split from its attached albumin by hydrochloric acid; the free fibril acid is soluble in alcohol but insoluble in water; the free Nissl acid, on the contrary, is insoluble in alcohol but soluble in water. Ammonia dissolves out the Nissl acid easily, but has no effect on the fibril acid.

It is interesting that Bethe has succeeded already in obtaining small quantities of these acids in a comparatively pure state and has begun the study of their physical and chemical properties. The free fibril acid is an amorphous substance, almost colorless, of horny consistence, insoluble in water, chloroform, ether or in dilute mineral acid. It dissolves tolerably easily in alcohol, especially when the latter is acidified, and can be precipitated from alcoholic solution by sodium hydrate or potassium hydrate in the form of alkali salt. The potassium and sodium salts are very soluble in water, but the ammonia salt is insoluble in either alcohol or water.

The free fibril acid suspended in water stains intense violet in toluidin blue. The free acid does not yield the biuret reaction, and it is not yet certain whether it contains nitrogen or not. The substance must be obtained in much larger quantities than those hitherto available before more definite statements regarding its nature and chemical constitution dare be made. Bethe

obtained only two centigrams of the substance from a whole kilogram of the spinal cord of the ox.

Inasmuch as the conduction of impulses by nerve fibers appears to depend on the integrity of the chemical compound on which the primary stainability of the neurofibrils depends, the extraordinary interest and importance of the fibril acid become at once apparent. Further research along these lines will be eagerly looked forward to by neurologists everywhere.

THERAPY OF EXOPHTHALMIC GOITER.

Although it is now ten years since Baumann isolated the active principle of the thyroid gland, and since Roos demonstrated that this iodin-containing body accomplished the chief functions of the thyroid, if not all of them, yet it has not to this day been settled whether thyroidin acts by neutralizing toxic products of metabolism or by furnishing some stimulus necessary for proper metabolism. Much evidence has accumulated, however, to lend support to the view that neutralization of toxic substances is an important function of the thyroid, whether its sole function or not. Of particular interest is the evidence secured through the successful treatment of exophthalmic goiter on principles suggested by the antitoxic theory of thyroid function. From the results of many experimental and clinical observations, it has been well established that the symptoms of exophthalmic goiter are largely due to a poisoning by products of thyroid metabolism, although the cause of this overproduction is still an unsolved problem. Thyroid products, therefore, although normally acting to neutralize toxic substances, are themselves toxic when not neutralized and present in sufficient quantities. If it were possible, therefore, to secure these toxic substances that the thyroid products normally neutralize, it might be possible to administer them to patients suffering from thyroid intoxication, and thus neutralize the excessive products of the thyroid. This is, of course, simply a reversal of the practice in the treatment of myxedema, in which disease the patient is presumably suffering from unneutralized products of metabolism, which can be neutralized by administering thyroid extract.

The first application of this idea to the treatment of exophthalmic goiter was probably by Ballet and Enriquez, and later independently by Lanz and by Burghart and Blumenthal. Material was secured by removing the thyroid from goats or dogs; when the blood of the animals had become saturated with toxic substances which should have been neutralized by the thyroid, and the animals were suffering from the consequent tetany or acute myxedema, they were killed and their blood secured for therapeutic purposes. Whether injected subcutaneously in the form of serum, or administered by mouth in the form of tablets of dry blood, favorable effects have been obtained by many independent and competent observers. Lanz has furthered popular use of this method of treatment by discovering that the milk of thyroidectomized goats contains the toxic materials, and as goats live for some time without their thyroids it is possible to have the patient take daily for several months one-half to one pint of such milk, with good results. As goat's milk becomes objectionable after some time, a preparation has been made by precipitating out the toxic materials and administering them in solid form; such a preparation is on the market in Germany.

The clinical course of exophthalmic goiter is so variable that one is justified in withholding an opinion as to the results of any particular method of treatment until very considerable numbers of cases have been followed for a long time. However, when clinicians of the reputation of Möbius and von Leyden go on record in favor of this method, which is furthermore founded on a scientific principle, it may be considered to be of no inconsiderable worth. Von Leyden has recently published an interesting clinical lecture on the topic,[1] in which he states that improvement is generally observed in three to four weeks, but the treatment must be followed for months and repeated at intervals according to the condition of the patient.

THE SERUM DIAGNOSIS OF TUBERCULOSIS.

While the use of the Widal reaction has become widespread in this country, and serum diagnosis has also been used to a considerable extent in dysentery and in summer complaint, its use in tuberculosis has been almost entirely neglected. Whether this is due to the technical difficulties which make this test more difficult than the Widal and allied reactions, or whether it is due to the fact that we are more apt to follow a German than a French example, is hard to say. It can not be denied, however, that in America this method of diagnosis has not been given an extended trial.

The matter was recently brought up by the originators of the test, Drs. Arloing and Courmont, at the Congress of Arts and Science in St. Louis, and a full description of the test with its drawbacks and difficulties was given.[2] As the authors point out, the sources of error may lie in the localization and evolution of the tuberculosis, or in the manner in which the cultures used for the test are developed. It is pointed out that advanced cases are the ones which most frequently do not give the reaction, and, on the other hand, very early cases, which may present no physical signs, do give it. For this reason many observers have been skeptical about the accuracy of the results reported by Arloing and Courmont, notwithstanding the fact that in a good many cases they have been able to control their clinical findings by autopsy. Then, again, in order that the test shall be a satisfactory one, it is necessary that the culture of the tubercle bacillus shall be in the form

1. Medizinische Klinik, Dec. 1, 1904.
2. Boston Med. and Surg. Jour., vol. cli, No. 23, 1904.

of a liquid homogeneous culture. Arloing and Courmont point out that it is quite difficult to obtain a good culture, and that some of those who have criticized their work have failed to follow closely their directions.

In order to obtain satisfactory results with their method, it is necessary, in the first place, to have a homogeneous liquid culture, grown in bouillon containing from 4 to 6 per cent. of glycerin, from a luxuriant greasy growth on potato. Such a suspension of tubercle bacilli must be tested with a standard serum which is known to agglutinate, as well as with the serum to be tested. As agglutination only occurs in relatively low dilutions, these should be used, preferably one to five, one to ten and one to fifteen. The serum to be tested should be fresh, clear and sufficient in amount, and the test should be watched for from three to five hours after it is begun. A test should never be considered positive unless the tubes show complete agglutination visible to the naked eye, and showing flocculi and subsequent clarification.

Arloing and Courmont have followed these directions in over 400 medical cases, with the following results: Where there was a positive clinical diagnosis of tuberculosis 87.9 per cent. gave the reaction, and 12.1 per cent. did not; in hospital cases with no clinical tuberculosis 34.6 per cent. gave a positive, and 65.4 per cent. a negative reaction; in apparently well persons 26.8 per cent. gave a positive, and 73.2 per cent. a negative reaction. In a smaller number of cases of surgical tuberculosis, over 73 per cent. of the cases gave a positive reaction. The writers also found that the fluids from tuberculous inflammatory lesions have the power of agglutinating tubercle bacilli, especially the serum from cases of tuberculous pleurisy and mild cases of tuberculous peritonitis. In the case of non-tubercular effusions no agglutination takes place.

With regard to the fact already noted, that in advanced cases no reaction may occur, the authors point out the similar lack of tuberculin reaction in many advanced cases. The lack of reaction may be due to great virulence on the part of the infecting tubercle bacillus, or to a lack of resistance on the part of the individual. The latter factor seems to be the more important, as the authors state that the development of the agglutinating power seems to require well-marked resistance on the part of the infected individual. The value of the test is both diagnostic and prognostic. It is diagnostically valuable on account of the fact that it occurs in the early stages of the disease, even in people who have neither symptoms nor physical signs. It is prognostically valuable in advanced cases, where a failure of the reaction indicates a lack of resistance, and renders the prognosis grave. The test has been confirmed by a number of observers, both in France and Germany, and though there are some who deny its value, it seems well worthy of a more extended trial.

EXPERIMENTAL SYPHILIS.

Metchnikoff and Roux, followed by Lassar and Neisser, have demonstrated conclusively, by numerous and diversified experiments, that syphilis may be transmitted by inoculation to chimpanzees and other apes. It has been found that in the chimpanzee the period of inoculation varies between twenty-two and thirty-seven days; and, furthermore, that the disease may be transmitted from chimpanzee to chimpanzee. This means that it now has become possible to subject the "virus" or "contagium" of syphilis to more penetrating investigations with the view to obtain some idea of its nature, and thus pave the way for its actual demonstration.

So far, minute study of the material known to contain the infectious agent of syphilis has not yielded any information—organisms have not been found in the scrapings and juices of chancres and other lesions in either man or anthropoid. The thought naturally suggested itself that the syphilitic virus might be filterable, like the virus or organisms of bovine peripneumonia, of foot-and-mouth disease, of yellow fever, etc. But the experiments of Klingmüller and Baermann[1] and of Metchnikoff and Roux[2] show that the cause of syphilis does not pass through filters that permit the passage of the organism of peripneumonia, while small known bacteria are held back. Hence the virus of syphilis does not seem to be filterable, whatever the reason for this may be.

Metchnikoff and Roux, then, show that the syphilitic virus completely loses its virulence when heated for one hour to 51 C. On the other hand, pure glycerin seemed to have no effect on the virus. They found, further, that the heated and the filtered inactive materials did not have the power to protect chimpanzees against virulent virus. From this result and from certain other considerations, Metchnikoff and Roux were led to believe that an attenuated virulent virus, suitable for the purposes of a vaccine, might perchance be obtained from animals with a relatively slight susceptibility to syphilis.

For this purpose, extensive studies of syphilis in lower forms of apes and of monkeys seemed indicated, and Metchnikoff and Roux as well as others have accumulated quite a number of observations anent syphilis in some of the catarrhine monkeys of the Old World. These observations are as yet, however, wholly preliminary and serve for orientation. Perchance, before long indications may be secured that will point out definitely the direction along which extensive experiments must be made. Undoubtedly, the renewed interest in syphilis caused by the demonstration of its transmissibility to apes and to monkeys sooner or later will lead to more light being thrown on the many obscure questions connected with its etiology.

1. Deut. med. Woch., 1904, p. 766.
2. Ann. de l'Institut Pasteur, 1903, xvlii, 657.

PERITONITIS AS A COMPLICATION OF TONSILLITIS.

Peritonitis results most commonly by extension from adjacent disease, especially of the abdominal viscera. Less commonly it arises as a result of infection transmitted by way of the blood stream from some more or less remote point. The tonsils have been pointed out as possible sources of danger in this connection. The function of these glandular structures is involved in some obscurity. They are known to act as absorbents and also to take part in the production of lymphocytes. By reason of their exposed situation, they are often the seat of disease, and there is a considerable volume of evidence that they serve as portals of entry for various pathogenic micro-organisms, at times, without being themselves seriously involved. Thus there is a growing belief that the micrococcus that is supposed to be the cause of acute rheumatism gains access to the interior of the body by way of the tonsils, and it is equally probable that other infections are acquired through the same channel. A case illustrative of this view has recently been recorded by Dr. Hermann Künzel.[1] A cook, 18 years old, came under observation in an unconscious state and died in the course of three hours. Postmortem examination disclosed the existence of purulent peritonitis, no other source for which could be discovered than inflammation of both tonsils. In cultures from these, as well as from the peritoneal exudate, streptococcus pyogenes developed. In explanation of the course of events in this case it is suggested that a small amount of fluid present in the peritoneal cavity may have constituted a favorable medium for the development of the bacteria entering the circulation by way of the tonsils. In any event, these organs must be reckoned with as one of the portals of entry for a number of micro-organisms capable of causing peritonitis, and their implication in various morbid processes is, therefore, not lightly to be dismissed.

DR. FRANK P. FOSTER.

Last Saturday Dr. Frank P. Foster completed his twenty-fifth year as editor of the *New York Medical Journal,* and we wish to congratulate him on the event. During the quarter of a century vast strides have been made in medicine and in medical journalism, but Dr. Foster has always kept at the front. Always honorable, fair and square as a man, he has stood for the highest ideals in medical journalism, and has set an excellent example for other editors to follow. As far as we know, since Dr. Culbertson of the *Lancet-Clinic* and Dr. Shrady of the *Medical Record* have given up editorial work, Dr. Foster is the Nestor of medical editors in the United States. We wish him many more happy and prosperous years.

THE USE OF SALT.

The question of the dangers of food preservatives is not yet thoroughly settled. The elaborate tests by Dr. Wiley, it is reported, have left with him an unfavorable impression regarding their effects on the human digestion, but his mind is still open to conviction on the subject. One thing, however, is certain—from an economic point of view, the food resources of the world would be considerably lessened if the use of all preservative chemicals, including common salt, was discontinued. Certain French physicians have recently discussed at some length the effect of salt and the value of dechlorization in certain disorders, and it is claimed, by at least one authority, that the use of salt is generally hurtful to the human system. The amount of the substance that we really require would be obtained through our food without the process of artificial salting, he says, and the taste for salt is not innate but is acquired. It would be impossible to avoid ingesting a certain amount of chlorid of sodium in our food. It is one of the most widely distributed substances in Nature, but it seems going a little to extremes to say that a taste for it is purely an acquired one, and it is easy to conceive that the universal craving for salt, which is shared by man in common with many of the lower animals, indicates a real want, and that at times, at least, salt may be insufficiently supplied by an unseasoned diet. Like everything else, salt is liable to overuse, but this does not mean that it may not be sometimes too little used. We can not dispense with the use of salt, if only for economic reasons, and while it may be harmful in certain disorders, its usefulness to the average individual in health and to the population generally can not be questioned. It would be an interesting calculation how much the world's progress is due to salt, and how far our present civilization could really exist without this important food preservative.

1. Münchener med. Wochenschrift, Oct. 25, 1904, p. 1920.

THE ORIGIN OF PARASITISM.

The remarkable predilection shown by certain species of microbes for certain hosts, and the relative indifference of these parasites to other organisms, has long been the subject of zealous speculation and inquiry. Great as has been the advance in our knowledge of the underlying causes of natural immunity during the last few years, it can not be said that any final explanation is even yet in sight. It is, indeed, apparent that the ardent prosecution of studies into the germicidal and antitoxic qualities of immune sera has caused a temporary suspension of activity in other lines of investigation. The broader biologic aspects of natural immunity sometimes have been neglected. It may well happen that studies in plant pathology will be found to throw light on some of the questions of animal parasitism that have hitherto been shrouded in obscurity. For some time botanists have known much concerning the various modes by which parasitic fungi gain access to the interior of the host plant. Some enter through the stomata, some by piercing the walls of the epidermal cells or the guard cells of the stomata. Marshall Ward, in his study of the Bermuda lily disease, discovered the interesting fact that the fungus concerned (a species of *Botrytis*) effects its entrance into the host plant by secreting at the tip of the germ tube an enzyme which softens the substance of the cell wall. Quite recently Massee has brought out important facts concerning the influences that determine the attack of a specific host

by a specific fungus. It is pointed out that while the spores of a parasitic fungus will germinate on the damp surface of the leaf of any plant, yet the germ tubes will enter the tissues and infect only the particular kind of plant on which the fungus is known to be parasitic. It is a legitimate inference from this fact that the tissues of the particular host possess a special and peculiar attraction for the parasite in question. This hypothesis has been tested experimentally, and it has been found that under certain circumstances positive chemotropism plays a prime part in inducing infection. Through the use of certain chemical substances shown to attract certain fungi, an otherwise immune host plant has been successfully infected. In other words, the entrance of a parasitic fungus into the tissues of a healthy plant depends, at least in some cases, on the presence of some positively chemotropic substance in the cells of the host. It is stated that a saprophytic fungus can be gradually educated to become an active parasite for a certain plant by introducing a positively chemotropic substance into the tissues of that plant. It is possible also by similar means to induce a specific parasitic fungus to invade a new host hitherto not attacked by this particular parasite. In this connection it has been pointed out that a remarkable coincidence exists between the behavior of fungus spores toward their host, and that of the pollen grains when placed on the stigmas of flowers of their own and of other species. The marked positive and negative chemotropic properties shown in the attraction of pollen tubes are apparently closely related to the similar manifestations of the germ tubes of parasitic fungi. The strict association of specific parasite and specific host may, perhaps, be explained on a similar chemotropic basis.

THE FOOD VALUE OF ALCOHOL.

The question whether alcohol is a food or not will be answered in accordance with the individual point of view, especially as to the definition of what constitutes a food. Some argue that if, after ingestion, it is oxidized in the tissues, entering into their formation and repair and giving rise to heat and energy, it must be considered a food, whereas, if it be excreted unchanged, it can not be thus classified. Different observers have reached divergent conclusions on the subject, and the explanation must be looked for, in part at least, in differences in method, and in part also in differences in conception of the character of a food. It has been shown that alcohol is oxidized in the animal body, although, at the same time, it interferes with metabolism or oxidation of other substances, as indicated by lessened absorption of oxygen, decline in body temperature, degeneration of albuminous tissues into fat and diminution in the amount of urea, uric acid, carbon dioxid and salts eliminated. This impairment of metabolism may be attributed, among other things, to interference with the oxygenating function of the red blood corpuscles, while the readiness with which the alcohol seizes on the oxygen in the tissues and thus robs the fixed elements of their proper share, results in arrest of decomposition at the stage of fat formation, and so, as a whole, in prevention of tissue waste. With the object of determining the exact point at which alcohol begins to be eliminated as such and the amounts of the substances into which it is transformed in the body, Dr. W. H. Goddard[1] undertook a series of experimental observations on dogs in which alcohol was administered in progressively increasing amounts. It was found that when alcohol was administered to the amount of 1/750 part of the body-weight, a little more than 5 per cent. of that amount was excreted. No aldehyd or other derivatives were detected in the expired air, the urine, the blood, or in any part of the body after death, so that it may be concluded that nearly 95 per cent. was utilized as food. When double the amount of alcohol was administered a little more than 6 per cent. was excreted, while acetic aldehyd made its appearance in the expired air, although none could be detected in the urine or elsewhere in the body. Finally, when a large amount of alcohol was administered, rather more than 49 per cent. of alcohol or its equivalent was excreted, and hence was unutilized. Accordingly, Goddard comes to the conclusion that alcohol has a distinct food value when taken in small amounts, but when larger amounts are given it is in considerable part excreted from the body unchanged, while at the same time the unutilized excess interferes with the normal metabolism. Over and above the part that alcohol plays in the metabolic economy, consideration must be given also to its irritant effect on the mucous membrane of the digestive system, and the tissues of the liver, the heart and blood vessels, the kidneys, the nervous system, etc. In a word, therefore, alcohol in small (physiologic) doses may be made to subserve a useful purpose, while in large (toxic) doses it is calculated to do harm.

Medical News.

ILLINOIS.

Chicago.

Wood Sent to Jail.—Dr. N. News Wood, of Christian Hospital notoriety, was sentenced to ten days in jail for contempt of court, December 30, and in addition he was fined $100 and the "hospital" $250, for violation of an injunction restraining them from using the name of Dr. John B. Murphy in connection with the establishment.

Chicago's Health in 1904.—Dr. Arthur R. Reynolds, commissioner of health, reports that during the first eleven months of the year there had been a total of 23,959 deaths from all causes reported, with an annual death rate of 12.54 per thousand—as compared with a total of 25,999 and a rate of 15.15 per thousand during the corresponding period of 1903. Since then there has been a great increase of mortality and the total is swelled to 26,300 for the year 1904, with an annual rate of 13.61 per thousand. Still this is the lowest on record for the city and the lowest by a wide margin for any city of magnitude either in this country or abroad. The lowest previous death rate for Chicago was 13.88 for the year 1901—a year of remarkable healthfulness throughout the world. Only five of the important causes of death show any increase over the numbers of the previous year. Except deaths from the acute intestinal diseases, which were 16 more than in 1903, the causes showing increases were diseases over which sanitary effort and preventive medicines have as yet gained little or no control. These are: Apoplexy, 116; Bright's disease, 128; consumption, 234, and cancer, 59 more than in the previous year. Smallpox, which more than once threatened an epidemic spread from repeated importations into the city, has been

1. Lancet, Oct. 22, 1904, p. 1133.

combated with such vigilance and efficiency that its mortality is only 30 as compared with 47 in 1903. This vigilance and efficiency, made possible by the city council's emergency appropriation, has prevented any panic or undue excitement from the continued presence of the disease—a presence which must last as long as smallpox remains so widespread throughout the country as it now is. A total of 2,614 fewer deaths among a population some 60,000 more than last year; a reduction of 1,224 deaths under 5 years of age, including 927 of children at the "milk-feeding period" of life; the best sanitary quality of the public water supply ever furnished, and as a consequence of the latter, a vanishing death rate from typhoid fever; a successful battle with frequent importations of smallpox—are among the features of the year on which Dr. Reynolds bases the claim that Chicago has maintained its record for highest degree of healthfulness among all the principal cities of the world—those having populations of more than 300,000 each.

MARYLAND.

Opening of Peninsula General Hospital.—The Peninsula General Hospital at Salisbury was opened formally December 28. There was a very large atendance of physicians of the eastern shore. The site is elevated, with fine view of Lake Humphrey and Wicomico River. The building cost $50,000 and was a present of Hon. William H. Jackson, M. C. It is of brick, stone and iron, four stories, with basement and sub-basement. The front is 35x46 feet, with two wings each 26x38 feet. In the sub-basement is the steam heating and electric light plant. In the basement is a chapel, embalming and autopsy morgue, dining-room, kitchen and laundry. The first floor contains writing room, physicians' and nurses' rooms, bath and toilet rooms, two wards and dispensary. The second and third floors contain private rooms and public wards, diet kitchens, and on the third floor is an operating room. There is an elevator. The president of the board has fitted up the building at an expense of $4,000, and the treasurer, Mr. W. R. Miller, has given an ambulance worth $500. The state appropriates $5,000 annually for the hospital. Addresses were delivered by Drs. Guy L. Hunner and H. O. Reik, Baltimore, and Dr. Joseph W. Hearn of Philadelphia. The medical staff consists of: Drs. F. M. Slemons, Louis W. Morris, J. McFadden Dick, E. W. Humphreys and George W. Todd, all of Salisbury; visiting medical staff, Dr. Joseph W. Hearn, Philadelphia, general surgeon; Dr. Howard A. Kelly, Baltimore, consultant; Dr. Guy L. Hunner, Baltimore, gynecologist; Dr. H. O. Reik, Baltimore, eye and ear specialist.

NEW YORK.

Measles in Buffalo.—Buffalo is suffering from an epidemic of measles. Forty to fifty cases of this disease are being reported daily to the Department of Health.

Personal.—Dr. A. W. Jayne of North Tonawanda has been appointed health physician to fill the term made vacant by Dr. Leanhardt, who has gone to Porto Rico.

Thrall Hospital.—The annual charity ball for the benefit of this institution, located at Middletown, was given Dec. 27, 1904. This hospital cares for many employes of the Ontario & Western Railroad and Mr. Fowler, president of the road, paid $250 for a ticket to show his appreciation.

Rabies in New York.—According to the last annual report of the State Department of Agriculture, rabies has been more prevalent in New York state than ever before. Rabies has been found to exist in the following counties: Sullivan, Ulster, Saratoga, Broome, Tioga, Tompkins and Chautauqua.

Impurities from Pulp Mills.—Recommendations have been awaiting the action of the legislature to restrain paper factories from polluting the waters of Lake Champlain and the streams in the vicinity with waste products. However, a new process for reclaiming these waste products has been invented in the meantime and is being used at Ausable Forks by which the water comes out perfectly clear, with all the impurities of the mill removed. Other companies expect to install plants, and it is hoped that there will be no further cause for complaint.

Safeguarding of Cities Against Impure Milk.—Health Commissioner Greene of Buffalo held a conference with State Commissioner Lewis and Commissioner Darlington in Albany concerning the safeguarding of cities against impure milk from the country. At present there is no inspection of dairies in the country and the cities have to rely to a great extent on the vigilance of the town health authorities to report dangerous conditions as to the source of the milk supply. It is proposed that New York City and Buffalo have their respective common councils authorize the appointment of the desired inspectors as city employes, the state health commissioner then to appoint them state inspectors without pay. The duties of such inspectors would be to make the rounds of all the dairies at frequent intervals to see that not only are the dairies in good sanitary condition and the utensils kept clean, but also that the cattle are kept in sanitary stables and that no milk from cows afflicted with tuberculosis or other diseases communicable to human beings be sent to the city. On the discovery of contagious disease in the family of a dairyman they are to suspend the sale of milk from this dairy until such time as the milk is beyond danger of infection.

New York City.

Personal.—Dr. Max Einhorn has been elected a corresponding member of "The Society of Physicians of Munich" (Aerztlicher Verein von München).

Beth Israel Hospital.—At the annual meeting of the directors of this institution it was reported that an additional building had been purchased at a cost of $71,000, adjoining the hospital. The total number of patients in the hospital during the year ended September 30 was 1,713; of these 88.5 per cent. were treated gratuitously. There is a surplus of $2,529 in the treasury.

Contagious Diseases.—There have been reported to the sanitary bureau for the week ended December 24, 347 cases of tuberculosis, with 143 deaths; 338 cases of diphtheria and croup, with 49 deaths; 227 cases of scarlet fever, with 15 deaths; 163 cases of measles, with 4 deaths; 60 cases of typhoid fever, with 17 deaths; 185 cases of varicella, and 17 deaths from cerebrospinal meningitis.

Good Collections for the Hospitals.—The general treasurer of the Hospital Saturday and Sunday Association reports an encouraging outlook for the collection now in progress. The returns from the church collections on Hospital Sunday showed large advances over last year. St. Thomas, for example, gave $3,300 more than last year, and the trades auxiliaries also show largely increased collections.

Presbyterian Hospital Deficit.—This hospital, one of the big four in the New York hospital group, reports a deficit of $72,963, which condition is by no means peculiar to this institution. It means that unless the public provides more generously for the hospitals they must come under municipal management. Mr. Frank Tucker, vice-president of the Provident Loan Society, has been urging the plan for raising a large endowment fund, the income to be used in supplementing the present incomes of the group of hospitals which find themselves in the same financial condition as the Presbyterian.

New Immigrant Hospital.—The United States government has planned to build a hospital for the reception of dangerous contagious diseases on an artificial island to be raised in the upper bay near Ellis Island. The land under water has already been purchased from the state of New Jersey and Congress has made available the sum of $150,000 for the construction of the island. The commissioner general of immigration will advertise for bids on the work in the immediate future. Some alarm has been expressed at what might seem to be the creation of a pest corral at the city's front door, but Dr. Doty, health officer of the port, did not think that there would be as much danger as under the present plan, and considered it much more fitting that the United States government should care for immigrants than the city of New York should continue to do so, even though the government was paying the city well for this service.

OHIO.

Ohio Valley Medical Association.—The executive committee of the Ohio Valley Medical Association has selected Henderson, Ky., as the place of the next annual meeting, which will take place Nov. 8-9, 1905. The president, Dr. J. W. Stone, will soon announce the standing committees.

Cincinnati Society for Medical Research.—At the regular meeting of the Cincinnati Society for Medical Research, held Dec. 22, 1904, the following papers were read: "The Sources of Tuberculous Infection in Cincinnati," Dr. B. F. Lyle; "Dystoma Hematoidium of the Bladder," with slides, Dr. A. Faller; "Histologic Findings in a Case of Diabetes Mellitus," Dr. J. E. Greiwe.

Cincinnati's Health in 1904.—The annual report of the health office shows that the number of deaths in Cincinnati

during 1904 was 6,975, as against 6,201 for 1903, an increase of 774. The greatest mortality occurred in January, February and March. The number of patients visited by the city physicians during 1904 was 6,250, with a total number of visits of 12,486, as against 6,360 patients and 14,698 visits for 1903.

Highland County Medical Society.—The Highland County Medical Society, a branch of the Ohio State Medical Association, held an all-day session at Hillsboro, Ohio, on January 4, the president, Dr. J. T. Gibson, in the chair. The following papers were read: President's Address, Dr. J. T. Gibson, Lynchburg; "Laryngeal Tuberculosis," Dr. J. A. Thompson, Cincinnati; "Surgical Tuberculosis," Dr. J. C. Oliver, Cincinnati; "Prevention and Cure of Tuberculosis," B. F. Lyle, Cincinnati.

Typhoid Fever in Cincinnati.—Typhoid fever seems to be increasing in Cincinnati, according to the report of the Department of Health, 41 cases with 5 deaths having been reported for the week ending December 23. The city seems to be singularly free from other infections, there being reported but one case of measles with no deaths, 12 cases of diphtheria with no deaths, 10 cases of scarlet fever with no deaths, 2 cases of smallpox with no deaths, and a scattering of other infections.

Coroner's Report for Hamilton County.—The report of Dr. Walter B. Weaver, who has just finished his second and last year as coroner of Hamilton County, shows that his office has handled the largest number of cases in its history, a total of 823 for the year. These cases were divided as follows: Homicides, 37; suicides, 103. Manner of suicide—By morphin, 6; by carbolic acid, 25, a marked falling off from the previous year; by laudanum, 3; by cutting throat, 7; by shooting, 25; by hanging, 14, an increase; by falling in front of train, 1; by drowning, 6; by paris green, 8; by jumping from bridge, 1; by jumping from window, 1; by prussic acid, 1; by undetermined poison, 1. Accidents, 334. Nature of accident: Killed by steam railroad, 82; by electric railroad, 28. This is the smallest number of fatalities by electric railroad for a number of terms. Natural deaths, 334; alcoholism, 15, showing an increase over former reports. Total number of native born, 585; foreign born, 219; undetermined, 19; an excess of native born over foreign born and undetermined cases of 366. During Dr. Weaver's first term, 1903, the homicides were 30; suicides, 95; street car cases, 42; steam car, 89; natural deaths, 303; miscellaneous accidents, 223. At the beginning of the new year Dr. Otis Cameron formally assumed the office of coroner of Hamilton County. Dr. Cameron is not new to his duties, as he has occupied the office of deputy coroner for several years during the régime of Dr. Walter B. Weaver. Dr. Oliver Coe, who has served as receiving physician to the Cincinnati Hospital for a number of years, has been selected as deputy coroner.

PENNSYLVANIA.

Personal.—Drs. L. M. Frankhouser and Oan J. Thompson have been elected president and secretary, respectively, of the staff of the Society for the Aid of Indigent Consumptives of Reading and Berks County.

Physician Injured.—Dr. Frederick W. Van Buskirk, Pottstown, while on a visit to Philadelphia, December 30, fell on an icy pavement and sustained a fracture of both arms at the elbow joint. He was treated in the German Hospital.

Philadelphia.

Webster in Philadelphia.—Dr. J. Clarence Webster, Chicago, read a paper before the Philadelphia Obstetrical Society, December 5, on "Fibroid Tumors of the Uterus," and was afterward the guest of honor at a reception given by Dr. Richard C. Norris at his residence.

Hughes Memorial.—In perpetuation of the memory of Dr. Daniel E. Hughes, who served as chief physician of the Philadelphia Hospital for 12 years, a bronze tablet was unveiled on the wall of the main entrance to the hospital with appropriate ceremonies, December 27. The memorial was secured by subscriptions from admirers and friends, which were largely secured by the kindly efforts of the *Philadelphia Press*.

Dinner to Dr. Chapin.—In an item of news in THE JOURNAL, December 10, 1904, page 1798, the presentation of an oil painting of Dr. Chapin was credited to the members of the staff and the board of trustees. We are informed that there were 125 subscribers to the fund, which included, beside those mentioned above, a large number of physicians connected with hospitals for the insane, the managers of the hospitals with which Dr. Chapin is connected, and of other hospitals, etc.

Decreasing Marriages.—During 1904 there has been a decided falling off in the marriages in this city, as the figures from the marriage license office indicate. During 1903, 13,091 marriage licenses were issued. During the present year only 12,190 were issued, a decrease of 901. These figures, however, were given before the close of the year; therefore, by adding 100 more to the list of 1904 there still would be a decrease of 801. The reason for this falling off in the number of marriage licenses the officials believe is due to the publication of the license list. This leads, they say, young people who wish to avoid publicity to go to New York, Wilmington and the surrounding counties in the state where no publication is made.

Antitoxin in Diphtheria.—From the study of the cases of diphtheria recently admitted to the Municipal Hospital the fact is disclosed that there is marked indifference in many quarters as to the value of antitoxin in the treatment of the disease. Of 147 cases admitted to the hospital during September and October not one had received antitoxin before admission. All diphtheria patients admitted to the hospital are immediately given antitoxin. The effect of the measure is demonstrated by the following figures: Of 7 cases admitted within twenty-four hours of the initial illness all recovered; of 51 admitted during the second day of the disease 3 (all laryngeal cases) died; of 29 admitted during the third day 3 died; of 25 admitted during the fourth day 6 died; of 13 admitted during the fifth day 2 died; of 8 admitted during the sixth day 2 died; of 5 admitted during the seventh day 3 died; of 9 admitted on and after the eighth day of the disease 2 died. In other words, of 87 cases admitted on or before the third day of the disease only 6 died, giving a mortality of 6.88 per cent., while of 60 cases admitted after the third day 15, or 25 per cent., died.

GENERAL.

Missouri Valley Medical Society.—The semi-annual meeting of the Medical Society of the Missouri Valley will be held in Kansas City March 23, 1905. An invitation has been extended to the presidents of the state associations within the territory embraced by the Missouri Valley and to the profession in general, and an interesting and profitable meeting is expected.

Southern Medical College Association.—The Southern Medical College Association has elected the following officers: President, Dr. Christopher Tompkins, Richmond, Va.; vice-president, Dr. J. C. LeGrande, Birmingham, Ala.; secretary, Dr. G. C. Savage, Nashville, Tenn.; executive committeee, Drs. J. A. Cain, Nashville; Charles Rosser, Dallas, Texas, and W. B. Rogers, Memphis, Tenn.

American Association for the Advancement of Science.—The fifty-fourth meeting of the American Association for the advancement of Science was held at the University of Pennsylvania, December 27-30. Beside the ten sections of the American Association, thirty affiliated scientific societies also held their annual meeting. This is the third time the association has met in Philadelphia.

National Association for the Study and Prevention of Tuberculosis.—The first annual meeting of this association will be held in Washington, D. C., May 18-19, 1905. There will be three divisions of the work—a sociologic, under the chairmanship of Mr. Homer Folks, New York City; a pathologic and bacteriologic, under the chairmanship of Dr. H. M. Bracken, St. Paul, and a clinical and climatologic division, with Dr. Norman Bridge, Los Angeles, as chairman.

One Hundred Years of Publishing.—The firm of William Wood & Co. of New York has just celebrated its hundredth anniversary and to commemorate it has issued a neat little book entitled "One Hundred Years of Publishing," which gives a history of the firm from its earliest beginning to the present day. With the exception of the Methodist Book Concern, this is the oldest publishing firm in New York. A most interesting account is given of the various buildings occupied by the firm and of the books and periodicals published by them. The business was founded early in 1804 by Samuel Wood, grandfather of the present senior partner of the firm, and his portrait forms the frontispiece. The first publication was a little primer called "The Young Child's A, B, C, or First Book," and a facsimile of the title page of this is reproduced. In 1810 Samuel Wood moved into a larger store and took into partnership two of his sons. In 1817 another move was made and also another son, William Wood, admitted to partnership. The business by this time had increased from the original trade in miscellaneous and second-hand books to the publication and general sale, both wholesale and retail, of books and general stationery. From the time of his admission to the firm William Wood was especially interested in medical works, and by his influence particular attention was paid to this class of publications. In 1836 Samuel S. and William

Wood bought out the interests of their father, Samuel Wood, and he retired from business. Samuel Wood died in 1844. In 1856 the firm again moved, this time to 389 Broadway. In 1861 Samuel S. Wood died, and for over a year William Wood conducted the business under his own name, moving to 61 Walker street. Soon after he took into partnership his son, William H. S. Wood, the present head of the house. The style William Wood & Co. was then adopted and has since been retained. From the time of his admission to the firm William H. S. Wood advocated further specialization in the direction of medical publications, and in 1866 the first number of the *Medical Record* was published. Various other medical and pharmaceutical journals have also been published by this house. The firm at the present time is composed of William H. S. Wood and his three sons, whose portraits appear in the book.

CANADA.

Toronto General Hospital.—The total number of patients treated at the Toronto General Hospital during the official year past was 3,825. Of these 2,191 were males and 1,634 were females. On Dec. 31, 1904, there were 276 patients in the wards.

Smallpox Statistics in Montreal.—Dr. Laberge, the health officer of Montreal, considers that the smallpox statistics for that city for the past few years is a fine illustration of the saying, "An ounce of prevention is worth a pound of cure." In 1885 the great epidemic carried off 3,164 people. In 1886 there were only ten deaths. From 1886 to 1896 not a death was reported. In 1897 there were 12 deaths, two in 1898, none in 1899, 10 in 1900, 2 in 1901, 10 in 1902, and 2 in 1903.

Pauper Immigration in British Columbia.—Dr. P. H. Bryce, chief medical health officer of the department of the interior at Ottawa, has been for some time in British Columbia securing statistics regarding the entry of diseased and pauper immigrants into Canada by way of British Columbia. The inspection is due to the report that diseased immigrants are getting into Canada by way of Puget Sound ports. There is no fear of European immigrants of the diseased class, who come direct, of getting into Canada via the United States, as the laws are sufficiently rigid in that country, but the government is investigating how far it can proceed with the inspection against the American border cities.

Dr. Osler in Toronto.—The last week of 1904 may well be handed down in the medical history of Toronto as "Osler" week, for Dr. Osler was there all week and, of course, was lionized. On the afternoon of Tuesday, Dec. 27, a reception was held in the new medical buildings by Dean and Mrs. Reeve for the purpose of giving the medical fraternity and their wives an opportunity of meeting Dr. Osler. On the following evening Dr. A. McPhedran, professor of medicine in the university, was at home to Dr. Osler and his medical friends, several being present from a distance from various parts of Ontario. On the afternoon of the following day Dr. Osler formally opened the new home of the Ontario Medical Library Association. This building, which has been recently acquired as a permanent home for this association, is situated in a convenient part of the city. To this library home Dr. Osler contributed $1,000, as well as making a large donation of books, formerly the property of his old preceptor, Dr. Bovel. Dr. Osler was further entertained by the Canadian Club and the Trinity Old Boys' Association.

FOREIGN.

Bubonic Plague at Aden.—From October 26 to November 25 the public health reports state that 21 cases of plague and 9 deaths from that disease were reported from Aden.

Senator Festschrift.—The *Festschrift*, presented to Senator on his seventieth birthday, is a volume of 460 pages, containing thirty works by his former or present pupils. It is published by A. Hirschwald of Berlin.

Zeitschrift f. Experimentelle Pathologie und Therapie.—This new medical periodical is a companion to the *Zeitschrift f. klinische Medizin*, being published in the same form and by the same publisher as the latter. The editorial staff comprises Brieger and Kraus of Berlin, Hering of Prague and Paltauf of Vienna.

Le Radium.—This is the name of a new semi-monthly medical journal just founded at Paris by a company including D'Arsonval, Blondlot, Becquerel, Beclère, Danysz, Oudin and Curie. J. Danne is the secretary, and Masson, 120 boul. Saint-Germain, is the publisher.

Honors for Ingegnieros.—Dr. J. Ingegnieros, professor of nervous and mental diseases at Buenos Ayres, has been awarded the prize offered by the medical faculty for the best scientific work published in the Argentine Republic during 1902-3. His friends gave him a banquet on the occasion. His works on nervous pathology are frequently quoted. Among the latest are articles on the hysteric laugh and the physiologic mechanism of musical language.

New Home for the Semaine Medicale.—The *Semaine Medicale* of Paris enters on its twenty-fifth year in new quarters, having recently moved to the building erected for a residence by the wealthy painter, Munkaczy. The artistic and palatial interior is in marked contrast to the popular conception of an editorial sanctum. The journal occupies the entire building, the editorial sanctum being a hall nearly 50 feet long by 26 wide, richly decorated with carvings, etc., in the renaissance style. The issue for December 14 gives several views of the interior of the new home. They suggest that the office boy will not have much time for his dime novels if he attempts to keep the carvings dusted.

The Don Quixote Tercentennial.—During January will be celebrated the three hundredth anniversary of the publication of *Don Quixote*, and our Spanish exchanges are devoting much space to the medical references to be found therein. The *British Medical Journal*, December 10, remarks that *Don Quixote* may be considered as a study of madness from its predisposing causes to its complete development. The contagion of insanity is shown in its effect on Sancho Panza, and the various efforts to divert the Knight of the Sorrowful Countenance from his exalted ideas indicate that Cervantes had a clear conception of the value of psychic treatment. He mildly satirizes the medical men of his day and makes frequent reference to various drugs and to the value of hygienic living.

Seaside Public Sanatorium.—The Sanatorium Umberto I, for the consumptive poor, erected at Leghorn, Italy, was formally inaugurated in December. Queirolo of Pisa, in the opening address, commented on the modern method of treating tuberculosis, which is to fortify the organism, to renew its energies and to stimulate its tissues to more active reactions. This is best realized at the seashore where the pure, ozonized air, the intense sunlight and the iodized emanations combined with nourishing food supply the elements needed for the struggle with the disease. The air of the Italian coast is a medicated, tonic and stimulant air, while the mildness of the climate and the great uniformity of the temperature are valuable points of superiority. He protested against the saying that "the Italian coast is the flower-strewn tomb for the consumptives of Germany." He also protested against the assumption that the mountains are better than the Mediterranean for tuberculosis, presenting arguments in favor of the seaside sanatoria.

Russian Physicians at Harbin.—Letters from Russian physicians at Harbin state that 32,000 wounded were received from the battles during the last four days of September. During the first weeks in October forty to fifty trains of cars loaded with wounded were always waiting at the station to be gradually emptied. There is a great difference now between the course of the wounds and those observed during the warm weather, the complications being much more serious and frequent. The wounded are not received until eight to twelve days after the injury. The first-aid dressings are, therefore, left unchanged too long, and during the colder weather the soldiers are dirtier and infection of the wounds occurs more frequently. Another reason for the higher morbidity is that the Japanese are using larger bullets with a comparatively soft copper mantle instead of the nickel steel mantles they used at first. During the warm weather scarcely any one succumbed in the hospitals to the effects of his wounds, but the outlook is different now, although the tidal wave of wounded has subsided. Fully 20,000 were given shelter in Harbin, the Red Cross and similar institutions caring for only 2,000, while all the rest were in the hands of the military surgeons. The writer of the letter from which we quote the above states that so much is said, written, printed and telegraphed about the work of the Red Cross that one is apt to forget that scarcely more than 10 to 12 per cent. of all the wounded pass through its hands. The care in the Red Cross hospitals averages better than in the military hospitals, but at an incomparably greater expense. There is plenty of good food in the army hospitals, and in every respect they hold their own in comparison, while in cleanliness they surpass the Red Cross. In the military hospital in his charge there are accommodations for 630 patients, with a surgical force of four, one of

whom is a gynecologist. The letters written home by the recently deceased Dr. B. Böttcher have been published in book form under the title, "With the Red Cross in the Far East."

LONDON LETTER.

The Motor Ambulance.

At the headquarters of the army medical corps an interesting series of trials was made to show that the motor car may be useful as an ambulance, for the generation of electricity, for the lighting of field hospitals, for the manufacture of ice, for the sterilization of water and for many other useful purposes in the field. On the snowclad square of the barracks the motor stood covered with armored plating one-quarter of an inch thick, forming an effectual protection against bullets. The driver was protected by shields. Within the shelter sat two Red Cross men. The idea is that the motor could advance to where the wounded lie, even in the line of fire. Then stationary armor flaps would be opened and complete protection afforded to the wounded and dressers while first aid is being rendered. After this they would be rapidly sent to the rear. The trials were watched by Sir William Taylor, director general of the army medical corps, who expressed his satisfaction.

The Health of the Navy.

A blue book containing a statistical report of the health of the navy for 1903 has been issued. On the whole the returns are very satisfactory. With an increase of 3,500 men as compared with the previous year there are decreases in the cases of illness, invalidings and deaths. The numbers are respectively 85,735, 2,478 and 433, in comparison with 85,769, 2,985 and 590 in 1902. The aggregate number of cases of disease and injury for the year furnishes a ratio of 831.57 per 1,000, which shows a decrease of 29.56 per 1,000 as compared with 1902, and of 48.6 when contrasted with the average of the last six years. The invaliding ratio—namely, 24.03 per 1,000—shows a decrease of 5.93 as compared with 1902, and also a decrease of 6.94 in comparison with the average for the last six years. The highest invaliding rate was on the North American and West Indian stations. As regards the death rate, the ratio per 1,000 was 4.19, showing a decrease of 1.73 as compared with 1902, also a decrease of 1.49 as compared with the average of the last six years. The highest death rate occurred on the East Indian station. The total death rate, 4.19, is the lowest recorded since 1856. The death rate from disease alone was 2.79 per 1,000, which is .72 less than in the previous year.

The Milk Supply of Towns.

The question of the milk supply of towns has been considerably discussed of late. It is certain that the conditions of many dairies and the manner of transport of milk leave much to be desired. How to obtain "clean milk" instead of that too often supplied containing much dirt and therefore swarming with germs is the problem. In a paper on "The Management of the Milk Supply of Towns," read before the Charity Organization Society, Dr. Edmund Cautley said that it is a matter of difficulty and uncertainty for the rich and almost one of impossibility for the poor to obtain satisfactory milk in large towns. There is a lack of efficient control. The local authority in London, for example, has due control over the production of milk in its district, but none whatever over that brought from the country. Consequently milk is drunk in London which has been declared unfit for sale in the country or in other large towns. It is difficult for the local authority to ascertain the exact source of the milk supply of any particular vendor. Even when this has been done it is only with considerable trouble and after the loss of a dangerous amount of time that the local authority, by means of a cumbrous legal process, can stop the delivery in its district of infected milk from a farm. Moreover, the same milk may still be delivered in an adjacent district. With regard to the bacteriologic impurity of milk from samples of milk bought in London, Dr. Cautley found from 3,000,000 to 30,000,000 of microbes in each teaspoonful. Though most of these microbes were harmless, it is by no means uncommon to find dangerous ones. In 14 per cent. of London milk the tubercle bacillus has been found.

The Expedition of the Liverpool School of Tropical Medicine to the Congo.

A most important and interesting report has been sent from the Congo by the expedition dispatched by the Liverpool School of Tropical Medicine. A state steamer was placed at the disposal of the expedition by the government, enabling it to make fairly complete observations of the spread and distribution of sleeping sickness along the Congo River from the "Pool" to the "Falls"—a distance of nearly 1,000 miles. A disease the nature of which has previously been unrecognized was found to occur amongst the state's cattle. Its pathogenic agent was shown to be a trypanosome, the species of which is yet undetermined. Sleeping sickness is a terrible scourge, especially amongst the river tribes. It is obvious that the disease has spread in the Congo in recent years along the lines of communication, that is, along the rivers. Declared cases of sleeping sickness are easily recognized, but the trypanosome may be present in the blood for months and even years while the patient remains in apparent health. It is believed that palpation of the cervical glands is an excellent clinical method of detecting an infected person. When many of these glands were enlarged to above 1.5 by 1 cm., other causes being absent, trypanosomes were generally found in the drop of fluid obtained by aspirating a gland with a hypodermic syringe. As a rule simultaneous examination of the blood gave a negative result.

The Medical Profession and the Teaching of Hygiene.

A petition signed by 14,718 medical practitioners has been directed to the central educational authorities of the United Kingdom in which each local authority is urged to consider whether it would not be possible to include in the curricula of public elementary schools and to encourage in the secondary schools such teaching as may lead all children to appreciate at their true value bodily conditions as regards cleanliness, pure air, food, drink, etc. The petitioners consider that such instruction should be placed among the subjects of compulsory education and be given at an earlier age than at present. They point out the conditions which prevail in Canada, Australia and America for such teaching. A syllabus of suggested courses in the teaching of hygiene and temperance has been drawn up and adapted to the different ages of the children in elementary schools, special attention being drawn to the deleterious effects of alcohol.

Correspondence.

The Propriety, Indications and Methods for the Termination of Pregnancy.

BOSTON, Dec. 20, 1904.

To the Editor:—In reply to the enclosed* letter: In my paper I have stated what are now generally considered to be the indications for the termination of pregnancy in properly selected cases, so that it is unnecessary for me to review the subject again here. As I have nothing to conceal in this matter, however, and as every operation that I have performed has been done after mature deliberation and consultation with reputable men, I have made a brief report of each case for publication.

1. Mrs. E. F. B., Oct. 15, 1900; seen in consultation with Dr. A. A. Cliff; patient had also been seen by Dr. L. A. Cliff; young married woman with extreme exhaustion from constant vomiting; she and husband both desirous of children and to have pregnancy continued if possible. Condition extreme and recovery considered doubtful even with operation. Adherent retroversion. Pregnant about six weeks. Curettage under primary anesthesia.

2. Mrs. F. W. H., Nov. 26, 1900; was referred to me by Dr. G. H. M. Rowe, superintendent of the Boston City Hospital, and was seen in consultation with Dr. S. W. Kelley, ex-president of the East Middlesex District Branch of the Massachusetts Medical Society. First pregnancy about six years before, and patient and her husband were anxious for other children. Second pregnancy at two months; critical condition from continued vomiting. At second consultation uterus curetted under very light anesthesia.

3. Mrs. E. R. F., wife of a physician; first seen July 11, 1903; about four weeks pregnant, with a mild degree of pelvic inflammation, and with marked degree of emaciation and general exhaustion. No improvement in condition under treat-

* EDITOR'S NOTE: This letter is a reply to that of Dr. Cattell in THE JOURNAL, Dec. 31, 1904. We sent a copy of Dr. Cattell's letter to Dr. Higgins December 9, asking him to send at once any reply that he wished to make. After waiting two weeks we published Dr. Cattell's letter in the issue of December 31, which went to press December 28. Dr. Higgins' letter was received December 30.

ment and restriction to bed. Husband suggesting that pregnancy be ended, I asked Dr. Charles M. Green, associate professor of obstetrics and clinical gynecology at the Harvard Medical School, to see the patient with me. Dr. Green saw the patient in consultation August 17, and advised operation, which was done, Dr. L. R. G. Crandon assisting.

4. Mrs. C. N. C., Sept. 29, 1904; seen in consultation with Dr. Edward T. Twitchell. Patient had been in a critical condition from previous illness and had been cautioned against immediate risk of pregnancy. I was asked to see the patient immediately early in the morning, because of her rapid decline from vomiting. Patient was in a private hospital, and operating table, etc., had been prepared for operation, but to save time and the patient's strength, she was quickly curetted on the bed under primary anesthesia. Vomiting ceased, but patient died in about twenty-four hours of exhaustion.

5. Mrs. G. H. H., wife of a physician; seen in consultation with her husband and Dr. J. B. Lyons; was referred to me by Dr. F. C. Shattuck, professor of clinical medicine at the Harvard Medical School. Patient was first seen on Nov. 20, 1903, and was in a very critical condition from continued vomiting, but operative relief was very much opposed and at first refused by the patient and her family. Three days later I was again summoned and performed the operation, assisted by Dr. Furrer. Recovery was very slow and during the convalescence Dr. Shattuck saw the case in consultation with me.

6. Mrs. E. M. G., Dec. 30, 1903; seen in consultation with Dr. Francis Magurn; about three and a half months pregnant; failing rapidly from inability to take and retain food. The cervix was dilated and applications made with the hope of obtaining some relief. Dr. E. M. Plummer, the laryngologist, saw the patient several times with the hope of relieving throat symptoms, which it was thought might be interfering with taking food. Dr. J. A. McDonald also saw the patient twice at the request of the family, and finally advised an immediate operation to save her life, although at first he was inclined to doubt the necessity for it, as he had never seen a similar case in many years' experience. Operation was performed on January 12, and Dr. Freeman Allen was asked to go out of town in the night to etherize, because of the patient's urgent condition and that it was impossible to empty the uterus at this period of pregnancy under primary anesthesia. There was improvement for a short time after the operation, but other symptoms developed, delirium, blindness, cerebral retraction, etc., and death in about seven weeks. It seemed probable that the cause was a tubercular meningitis.

7. Mrs. F. W. H.; same patient as No. 2. Anxious for more children and about two years before consulted Dr. Kelley to see if he considered it safe for her to become pregnant again. March 17, 1904, Dr. Kelley telephoned me that Mrs. H. was in a dangerous condition from pernicious vomiting of pregnancy, and asked me to see the case with him. After consultation with Dr. Kelley immediate operation was done to relieve the patient.

8. Mrs. G. H. H.,; same patient as No. 5, and seen in consultation as before, Sept. 17, 1904. Subacute appendicitis complicating pregnancy; very severe vomiting and most distressing thirst, retaining no food and practically no liquid. As some form of relief was fast becoming imperative, it was debated whether the appendix should be removed or the uterus emptied. The latter seemed the safer procedure, inasmuch as removal of the appendix might not relieve the symptoms, and she was in no condition to undergo both.

9. Mrs. R. K.; first seen Sept. 16, 1904, with Dr. Francis J. Ford. About four months pregnant; last confinement about one year before, which she barely survived, owing to cardiac and renal disease. When first seen she was beginning to complain of shortness of breath, inability to walk much or to go up stairs. The question of interference was raised, but it was thought that under rest and care she might reach the viable period. She grew worse, however, and on October 18, after a bad night with pain, increasing dyspnea and cyanosis, labor was induced.

The above include all of my cases done before the viable period. There are also some cases in which premature labor was induced after the seventh month, but I see no necessity for reporting these at this time. FRANK A. HIGGINS.

Enuresis in Children.

NEW YORK, Dec. 30, 1904.

To the Editor:—The editorial in THE JOURNAL of Dec. 24, 1904, and the previous comments on the paper of Dr. J. C. Rey, on the subject of enuresis in children, both seem to leave Hamlet out of the play. Preputial adhesions are so predominantly the cause for enuresis, or at least the precipitating factor, that they might well be referred to in Celtic capitals in "scarehead" proportions in the text of contributions on the subject. Particularly in girls is enuresis dependent on preputial adhesions. It is one of the curiosities of medical literature that the subject of preputial adhesions is dealt with chiefly in reference to boys, while, as a matter of fact, girls need circumcision more frequently than boys for the reason that they are more subject to preputial adhesions than boys are. The more impressionable nervous system of girls responds to the irritation more quickly and more extensively than it does in boys. If any woman physician struggling for practice wishes to get some brilliant results, and fame ahead of time, let her take up the subject of circumcision in girls. Concerning the single symptom of enuresis, it will commonly disappear on the day on which circumcision is performed, and will not reappear. In older patients who have developed an enuresis habit, in spite of applications of moral suasion, belladonna, the back of a hair brush, and Eddyism, there is a tendency for occasional enuresis after the cause has been removed, but the results of circumcision in the cases that are dependent on preputial adhesions are so prompt, as a rule, that we are not left in any doubt about the character of the influence that had been at work. ROBERT T. MORRIS.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

QUALITATIVE SUGAR REACTION IN THE URINE.

To the Editor:—Anent your editorial in THE JOURNAL, Dec. 10, 1904, on the above subject, permit me to call you attention to the method advocated in inclosed reprint. It is much simpler, it is no more time consuming, and it is more certain (in small percentages) than is fermentation, and it is certainly much less trouble. W. C. RILEY.

ANSWER.—The method recommended by Dr. Riley is as follows: "Take equal parts of the suspected fluid and Fehling's, cold, mix thoroughly and set aside. Any urine containing .05 per cent. or more glucose will react, giving a yellow precipitate in the course of 24 hours or less, according to the amount of glucose present and the room temperature." In connection with Dr. Riley's comment a brief historical review of our knowledge of the reduction of copper salts by sugar in the urine may be of interest. The fact that salts of copper, especially blue vitriol, are reduced in alkalin solution by glucose with separation of red cuprous oxid was first discovered by Becquerel; the reaction was not studied carefully, however, until 1841, when at Mitscherlich's suggestion Trommer looked into the matter and demonstrated the extraordinary delicacy of the reaction which has since borne his name. Müller and Hagen showed later that under favorable conditions as little glucose as 0.00000833 gram in ice water could be easily and certainly demonstrated. On applying Tommer's test or other copper tests to urine, however, peculiar difficulties are met with owing to the fact that substances other than sugar in the urine (e. g., uric acid, pigments, kreatin, kreatinin, albumen, peptone, ammonium salts, as well as various drugs—chloral, salicylic acid, salol, phenacetin, antipyrin, acetanilid, salfonal, etc.) are capable of reducing the copper salts or of preventing the precipitation of cuprous oxid; thus Jolles[1] has shown that mistakes that correspond to as much as 0.24 per cent. of glucose may be made. The disturbing effect of other reducing substances in the urine can often be decreased by diluting the sample five or ten times (Zchuissen). More important still, glucose reduces at a temperature below 100 C.; the others usually only on boiling. Another method recommended by Focke[2] consists in boiling 10 grams with 5 g. copper-sulphate solution (1:9), to the well-cooled filtrate adding

soda solution 1.9, allowing to sediment after shaking and then adding a few drops of this fluid to a hot mixture of equal parts Fehling's solution and water and boiling. Instead of copper-sulphate, Barfoed[3] used a solution of one part of crystallized neutral cupric acetate in 15 parts water; 200 c.c. of this were mixed with 5 c.c. acetic acid (38 per cent.). Müller and Hagen[4] were able to demonstrate as little as 0.007 per cent. glucose by allowing a mixture with the solution to stand for 12 hours at 45 C. A copper solution which is reduced even in the cold can be obtained, according to Becquerel,[5] by dissolving 6.25 g. blue vitriol in 50 c.c. water and adding it, with constant stirring, to 100 ccm. sodium hydrate solution (sp. gr. 1.20) so that all remains dissolved. Other solutions for the same purpose have been recommended by Krantz and Gawalowski. According to Sjollema[6] a most sensitive solution for reduction in the cold consists of 100 c.c. of 10 per cent. copper sulphate solution along with 30 c.c. of 10 per cent. solution of ammonia, or a mixture of 100 ccm. of 5 per cent. copper-acetate solution, a little acetic acid and 30 ccm. of 10 per cent. solution of ammonia; no excess of ammonia dare be present, and no torbidity should arise on dilution with water until 10 volumes have been added; if 2 c.c. of a fluid containing glucose be added to 0.5 c.c. of the reagent, turbidity formation of a voluminous precipitate occur immediately if 0.5 per cent. glucose be present, or more gradually with 0.25 to 0.115 per cent. of glucose. Riley[7] finds very satisfactory the use of equal parts of the suspected urine and cold Fehling's solution, mixed thoroughly and set aside, as indicated in his letter above. It was Fehling[8] who first established a definite reduction relation (1:5) between glucose and cupric oxid; he used neutral tartrate of potassium in making his solution, a salt which Boedeker subsequently replaced by tartrate of sodium and potassium (Sal Rochelle). The error was long made of thinking that the reduction relation of 1:5 held under all circumstances; numerous researches have shown, however, that the glucose equivalent of Fehling's solution is far from constant, varying with the concentration, the alkalinity and time of action. It is interesting to note how many variations in the composition of Fehling's solution have been recommended; we have found no less than 32 different formulæ in the literature, and doubtless even more exist. Full clearness regarding the process of copper reduction by glucose was not obtained until Soxhlet[9] made his exhaustive studies of the subject. For quantitative estimations many efforts have been made to keep the cuprous oxid in solution during filtration in order to expedite the determination; where the ordinary Fehling's method is employed the end-reaction is marked by the precipitate and one has to wait until it settles or filter and make repeated filtrations. The method of Pavy,[10] the method of Moritz, that of Peska, that of Gaud, and Haines' method, utilized an excess of ammonia to hold the reduced salt in solution. Gerrard,[11] for a similar reason uses cyanid of potassium, a method which Riley, in this country, enthusiastically supports. If it be borne in mind that, with these rapid methods of estimation by filtration, the results obtained are not rigidly exact, there would seem to be no valid objection to their use for chemical purposes; they would not suffice for strictly quantitative work, but are probably sufficiently accurate for the needs of the clinic.

1. Chemisches Centralblatt, vol. xcv, p. 175. 2. Chemiker-zeitung, vol. xviii, Repertorium 197. 3. Fresenins' Ztschr. f. Analy. and Chem., vol. xi, p. 321. 4. Pflüger's Archiv., vol. xxii, p. 325. 5. Annales de chim. et physique, II, vol. xlvii, p. 15. 6. Chemiker Zeitung, vol. xxi, p. 739. 7. Calif. State Jour. of Med., November, 1904. 8. Liebig's Annalen, vol. ixxii, p. 106, and vol. cvl, p. 75. 9. Journal f. prakt. Chemie, vol. xxi, p. 227. 10. Lancet, March 1, 1884. 11. Chem. Centralbl., 1896, II, 135.

A GOLDEN OPPORTUNITY.

Some of our readers have favored us with copies of a circular letter that is being sent to physicians. It is as follows:

SPRINGFIELD, OHIO, Dec. 15, 1904.

A golden opportunity which is offered but once in life.

As I am about to retire from the practice of Medicine, after having spent many years a Specialist in Office Practice, and at the earnest solicitation of many physicians, I have finally concluded to place my PRIVATE formulas in the hands of physicians where they can accomplish the most good.

Each one of these formulas are worth hundreds of dollars to the earnest and energetic physician, as they are both MERITORIOUS and ORIGINAL.

With these in his possession, the physician can easily double, and even treble his annual financial income. They are as follows, namely:

1. Stomach Powder; 2. Catarrh Ointment; 3. Pile Ointment; 4. Syphilis and Blood.

And, in order to give them as wide a circulation as possible, I will send all the above private formulas to any physician, with full directions as to their use, upon receipt of Ten ($10.00) Dollars in Registered Letter, Money Order or Draft.

From reading this letter, in spite of the bad grammar it contains, one would imagine that the writer had been a very successful physician and had had wonderful results in his practice. We find, however, that such is not the case, strange as it may seem. Further, we find he is not even a graduate from a recognized school. He did succeed in getting a "diploma" from a so-called "American Eclectic College of Cincinnati," an institution that has long been extinct, and concerning which it is alleged that during its brief existence it was simply a diploma mill. The practice of this doctor, who is so generous with his prescriptions, we are informed, has thus far been decidedly limited, and if he can sell a few "formulæ" each month at $10.00 each he will make more money than he has been making in his practice.

PHYSICIANS AS NOSTRUM PROMOTERS.

The following is a copy of a letter that is being sent to physicians, and, as it is so delightfully innocent, we can not resist the temptation to publish it in full. Just what the physician is to get out of it is not evident on the face of the letter, but undoubtedly there will be a goodly number who will respond to the generous request for a testimonial. It must be borne in mind that the preparation is not now being advertised to the laity only in certain medical journals:

BROMIN-IODIN CHEMICAL COMPANY.

BINGHAMTON, N. Y., Dec. 12, 1904.

Dear Doctor:—

We are preparing matter for a booklet which we intend to send free to every physician whose name appears in Polk's Medical Directory.

We intend to advertise our compound through the newspapers in every locality where it is used by physicians, and the advertisement will be written in such a way as to create a desire on the part of the laity to secure our booklet that they may learn how they can be cured of Asthma—Bronchitis—Consumption—Hay Fever—Pneumonia—or kindred diseases.

If you feel at liberty, we would be grateful if you will give a brief indorsement and permission to print it in the booklet; if you decide to do this, so far as possible, kindly avoid technical terms, that the laity will have no difficulty in understanding it. We would also be glad to append your name and address to our newspaper advertising as being able to administer our compound, but your name will not be used in any way *unless you give us permission.*

We already have a number of indorsements, and desire to get the copy for the booklet into the hands of the printer before the end of this month, so as to begin mailing them by Jan. 1, 1905, at the latest. We desire to thank you for your past patronage.

Very truly, BROMIN-IODIN COMPANY.

RESULTS OF STATE BOARD EXAMINATIONS.

BALTIMORE, Dec. 20, 1904.

To the Editor:—Will you kindly tell me which of the following named institutions obtained the highest marks in the different state board examinations for the year 1904: Baltimore Medical College, College of Physicians and Surgeons of Baltimore, University of Maryland School of Medicine, Baltimore University School of Medicine, Maryland Medical College, Southern Homeopathic Medical College of Baltimore, Johns Hopkins University School of Medicine. LOUIS C. BONETA.

ANSWER.—In THE JOURNAL, Aug. 13, 1904, pages 514 and 515, we published a report in which were given the number of graduates from the colleges mentioned who passed or failed in the various state board examinations during 1903. We quote as follows:

	Totals.	Passed.	Failed.	Percentage of Failures.
Baltimore Medical College.—R	135	110	25	18.5
Baltimore University School of Medicine.—R.	43	19	24	55.8
College of Physicians and Surgeons of Baltimore.—R	74	56	18	24.3
Medical Department, Johns Hopkins University.—R	53	52	1	1.9
Southern Homeopathic Medical College.—H.	3	2	1	33.3
University of Maryland, School of Medicine.—R	102	89	13	12.7
Maryland Medical College.—R	56	31	25	44.6

Complete statistics for 1904 have not yet been compiled.

WANTS A GOOD FAMILY DOCTOR BOOK.

MARION, IND., Dec. 21, 1904.

To the Editor:—A good patron of mine wanted me to recommend to him a good family doctor book, or, in other words, a book on general medicine for family use, and I am anxious to get the best and latest for him. Have you such a book in mind which you could recommend? C. J. OVERMAN.

ANSWER.—Such a situation is a delicate one. In some cases, if the physician who is asked such a question vigorously expresses his convictions as to the peril of self-drugging by the laity, he may repel his questioner, and may lose his influence over him. On the other hand, tactfully to suggest the dangers may have some effect. A book like Walter L. Pyle's "Personal Hygiene," (1904, W. B. Saunders & Co., New York City, $1.50, 441 pages) may be recommended. It is more than its title indicates and gives the simple household treatments that may safely be used by any one

of ordinary common sense. An excellent book for young women is "Beauty Through Hygiene," reviewed in THE JOURNAL, Nov. 12, 1904, page 1485. "A little knowledge is a dangerous thing," and many persons pass beyond the confines of the legitimate home treatment of minor aches, cuts, bruises, indigestions, etc.

A BURLESQUE NUMBER OF THE JOURNAL.

HARRISONVILLE, MO., Dec. 21, 1904.

To the Editor:—Apropos of the query and answer concerning the burlesque number of the *Münchener med. Wochenschrift*, in the December 17 issue of THE JOURNAL, would it not be a commendable policy for THE JOURNAL of the American Medical Association, the greatest Wochenschrift in America, to supply its many readers a burlesque number once a year? I can not see wherein such a policy would detract from its dignity or in any way interfere with its scientific purposes. Moreover, the strenuous life of the average American physician, more than that of the more philosophic German, is in dire need of some such occasional relaxing and restraining influence. Not to my knowledge has anything of the kind been attempted in America; but should such a policy be instituted by THE JOURNAL, it is my judgment that it would be received with almost universal favor and enthusiasm. Yours truly,

J. S. TRIPLETT, M.D.

SEQUELS OF GONORRHEA.

ATLANTA, GA., Dec. 23, 1904.

To the Editor:—Will you kindly publish, under the head of "Queries and Minor Notes," the diseases and conditions usually included under the "Sequelæ of Gonorrhea?" G.

ANSWER.—In men the following conditions may be complications or sequelæ of gonorrhea: Chronic urethritis, anterior or posterior or both; stricture, chronic cystitis, periurethral abscess, inflammation of Cowper's glands, prostatitis, epididymitis, orchitis, inflammation of the vas deferens, inflammation of the seminal vesicles, pyelitis, pyonephrosis, gonorrheal rheumatism and arthritis, rheumatic gonorrheal ophthalmia, gonorrheal conjunctivitis.

In women any or all of the following conditions may be caused by gonorrheal infection: Endometritis, salpingitis, pyosalpinx, pelvic abscess, ovaritis, and more rarely cystitis, gonorrheal rheumatism and arthritis and gonorrheal conjunctivitis.

REPORT OF CANCER RESEARCH FUND.

KALAMAZOO, MICH., Jan. 2, 1905.

To the Editor:—At a meeting of the general committee of the Cancer Research Fund, held recently in England, Dr. E. F. Bashford made an interesting and important report regarding the cause, infectiousness and treatment of cancer. Do you know of such a report and where it may be found or where I may find any article along this line? O. H. CLARK.

ANSWER.—A reprint of Dr. Bashford's report may be obtained from Taylor & Francis, Red Lion Court, Fleet Street, London, E. C. The price is 2s 6d (about ($0.60). This report was mentioned editorially in THE JOURNAL March 5, 1904, page 650. A paper by Dr. G. Cooke Adams on "Cancer in Australia, with Specific Treatment for the Prevention and Spread of the Disease," appeared in *The Lancet*, Feb. 13 and 20, 1904, and was abstracted in THE JOURNAL March 5 and 12, 1904, pages 683 and 741.

HYGIENE OF BATHS AFTER EXERCISE.

BALTIMORE, Dec. 28, 1904.

To the Editor:—Is it better for a baseball player to take his shower at once, or should he wait some time to cool off and then take shower? The above is a question being debated by several medical friends and we leave it to you for solution. A.

ANSWER.—At once. The shock is greater after the relaxation of cooling off and the desired reaction may thus be interfered with. It is to be remembered that some persons, who do not react well to a cold shower, ought not to take it.

Marriages.

WILLIAM N. RUSSELL, M.D., to Miss Annie M. Longley, both of Baltimore, December 20.

RICHARD HALL JOHNSTON, M.D., to Miss Mary Page Small, both of Baltimore, December 21.

JOHN NORMAN PATTERSON, M.D., to Miss Louise Blanke, both of Burlington, Iowa, December 28.

JESSE P. GALBREATH, M.D., to Miss Nellie E. Bevan, both of Burnett's Creek, Ind., December 21.

ROY GILBERT STRONG, M.D., to Miss Lillian Mae Strong, both of Buffalo, N. Y., December 27.

W. BROWNLEY FOSTER, M.D., to Miss Clark Lee Crenshaw, both of Richmond, Va., December 20.

J. OLIVER PURVIS, M.D., of Annapolis, Md., to Miss Annie Stassford, at Baltimore, December 22.

DIELY N. PATTISON, M.D., Oelwein, Iowa, to Miss Schueknecht of Waverly, Iowa, December 22.

J. CHARLES BURKS, M.D., Roanoke, Va., to Miss Lelia Johns McCorkle, at Glasgow, Va., December 20.

DORSEY WARTMAN LEWIS, M.D., to Miss Mary Clayton Williams, both of Middletown, Del., December 15.

BENJAMIN STOCKWELL BARRINGER, M.D., to EMILY DUNNING, M.D., both of New York City, December 24.

THOMAS F. RODWELL, M.D., Cass Lake, Minn., to Miss Mayme Holden, of Brainerd, Minn., December 22.

M. ALPHEUS BURNS, M.D., Milan, Minn., to Miss Wilena McKenzie of Minneapolis, Minn., at Kalamazoo, Mich., December 21.

Deaths.

William C. Haven, M.D. New York University, New York City, 1877, a member of the Connecticut Medical Society, who represented his district in the legislature both as representative and senator; medical examiner for Coventry, some-time president of Tolland County Medical Association, died at his home in Coventry, Conn., from influenza, December 26, aged 53.

Martin P. Scott, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1846; surgeon in the Confederate service during the Civil War; professor of diseases of women and children in the Washington University School of Medicine, Baltimore, from 1867 to 1876, died from uremia at Hagerstown, Md., December 30, aged 81.

Gillespie S. West, M.D. New York University, New York City, 1854, a member of the American Medical Association; surgeon to the Sixteenth Alabama Infantry, C. S. A.; later brigade surgeon and then surgeon-in-charge of the hospitals in Atlanta during the Civil War, died at his home in Palestine, Texas, December 27, aged 81.

Marion Meredith, M.D. Medical College of Ohio, Cincinnati, 1860; a member of the American Medical Association; surgeon of the Sixty-eighth Iowa Volunteer Infantry during the Civil War; a practitioner of Vinton, Iowa, since 1866, died at his home in that city, after an illness of a few days, December 28, aged 73.

Abraham McMahon, M.D. Medical College of Ohio, Cincinnati, 1857, some-time physician and coroner of Santa Clara County and medical director of the Yountville Soldiers' Home; a surgeon in the Civil War, died suddenly at his home in San José, December 24, from heart disease, aged 72.

Stephen Fish Selby, M.D. College of Physicians and Surgeons of the Western District of New York, Fairfield, 1839, surgeon to the Third Ohio Volunteer Cavalry in the Civil War, died at his home in Ashtabula, Ohio, December 24, from the effects of a fall two days before, aged 90.

Elisha W. Baily, M.D. Jefferson Medical College, Philadelphia, 1844, surgeon of the Forty-seventh Pennsylvania Volunteer Infantry in the Civil War, died from subacute congestion of the lungs at his home in Sadbury Township, north of Christiana, Pa., December 4, aged 83.

Alphonso A. White, M.D. University of Maryland School of Medicine, Baltimore, 1853, surgeon of the Third and Eighth Maryland Volunteer Infantry, and later division surgeon during the Civil War, died at his home in Baltimore, December 18, from apoplexy, aged 73.

Robert Jones Owen, M.D. Miami Medical College, Cincinnati, 1869, died at his home in Cedar Grove, Ind., from tubercular peritonitis after an illness of three months, December 22, aged 62. He was an honorary member of the Franklin County Medical Association.

Henry Clay Clark, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1853, surgeon of the Second New Jersey Volunteer Infantry during the Civil War, died at his home in Woodbury, N. J., December 26, after a long illness, aged 82.

Albert Herbert Lilliston, M.D. University of Virginia Medical Department, Charlottesville, 1898, a member of the American Medical Association, died at his home in Accomac Court House, Va., December 20, from pneumonia, after a brief illness, aged 28.

James D. Tantum, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1878, of Trenton, N. J., died at the German Hospital, Philadelphia, from typhoid fever, after a surgical operation, December 18, aged 48.

William M. L. Fisk, M.D. Bellevue Hospital Medical College, New York City, 1863, a veteran of the Civil War, died from heart disease at his home in Brooklyn, N. Y., December 21, after an illness of four years, aged 63.

Henry C. McLean, M.D. New York University, New York City, 1873, a member of the New York State Medical Society, died at his home in Brooklyn, December 23, from neuritis, after an illness of a year, aged 44.

Merlin Caldwell, M.D. Western Pennsylvania Medical College, Pittsburg, 1904, of Ford City, Pa., died at Mercy Hospital, Pittsburg, December 23, after an illness of three weeks, from typhoid fever, aged 30.

Levi Mathiew, M.D. College of Physicians and Surgeons of Chicago, 1883, who recently moved to Chicago from St. Anne, Ill., died at his home from paralysis, December 11, after an illness of a year, aged 54.

Edward Hooker Dewey, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1862, died at his home in Meadville, Pa., December 21, from paralysis, after a long illness, aged 67.

Reuben Satterfield, M.D. University of Nashville, Tenn., 1900, was assaulted by a negro farm hand on his farm in Allen County, Ky., November 24, and died December 1 from his injuries, aged 35.

Frederick C. Cluxton, M.D. University of the Victoria College, Coburg, Ont., 1871, committed suicide while mentally irresponsible, by shooting himself through the head, December 17, aged 58.

Elmore H. Wells, M.D. Bellevue Hospital Medical College, New York City, 1867, a surgeon in the federal service during the Civil War, died at his home in Meshoppen, Pa., December 13.

Enos Penwell, M.D. Indiana Medical College, La Porte, Ind., 1848, for more than half a century a practitioner of Shelbyville, Ill., died at his home in that city, December 24, aged 83.

Samuel Carson Garver, M.D. Medical Department University of Illinois, Chicago, 1898, committed suicide by taking carbolic acid at his office in Birmingham, Ala., December 3, aged 32.

James W. Cairncross, M.D. Bellevue Hospital Medical College, New York City, 1875, died at his home in Wauwatosa, Wis., December 21, after a prolonged illness, aged 52.

Earl Devore, M.D. Medical College of Ohio, Cincinnati, 1900, died while en route from Florida to his home in Ripley, Ohio, December 28, from tubercular peritonitis, aged 26.

Jeremiah W. Dearborn, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1857, died at his home in Maplewood, Maine, December 9, aged 72.

Thomas A. Curtis, M.D. College of Physicians and Surgeons in the City of New York, 1886, died from pneumonia at his home in Red Bank, N. J., December 23, aged 43.

Lewis A. Foote, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1873, died at his home in Grand Rapids, Mich., December 24, aged 56.

John S. Prettyman, M.D. New York, 1867, consul at Glasgow, Scotland, in Lincoln's administration, died at his home in Melford, Del., December 24, aged 79.

D. L. Stine, M.D. American Medical College, Indianapolis, 1897, a member of the State Dental Board, died from peritonitis following appendectomy, December 7.

John Alonzo Osborne, M.D. Medical Institute, Cleveland, 1855, died suddenly at his home in Portsmouth, Ohio, from heart disease, December 4, aged 73.

William Pike Phelon, M.D. Medical Department of the University at Keokuk, 1865, died at his home in San Francisco, December 29, from heart disease.

Joseph A. Ringe, M.D. University of Würzburg, Germany, 1868, died at his home in St. Louis, December 14, after an illness of seven months, aged 65.

Charles J. Miller, M.D. Hospital College of Medicine, Louisville, Ky., 1901, died from pneumonia at his home in Shawnee, Okla., December 25, aged 32.

James Orr, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1871, died at his home in Terrell, Texas, December 25, aged 57.

William J. Jones, Jr., M.D. New York University, New York City, 1891, of Winston, N. C., died suddenly near Verona, N. C., December 19, aged 34.

Lyman Leavitt, M.D. Pennsylvania Medical College, Gettysburg, 1857, died at his home in Trenton, N. J., from pneumonia, December 29.

John E. Frick, M.D. University of Heidelberg, Germany, 1850, died at his home in Limaville, Ohio, Nov. 7, 1904, aged 80.

D. C. Wallace, M.D. Missouri Medical College, St. Louis, 1856, died at his home in Litchfield, Ill., December 21, aged 85.

Ellen O. Beebe, M.D. Illinois, 1879, was found dead in her apartments in Chicago, December 30, from exposure, aged 55.

George H. Miller, M.D. Rush Medical College, Chicago, 1874, died suddenly at his home in Galena, Ill., December 30.

Caleb N. Harrison, M.D. Johns Hopkins Medical School, Baltimore, died in Madison, Wis., Oct. 11, 1904.

Homer J. Doucet, M.D. Pennsylvania, 1863, died at his home in Philadelphia, December 20, aged 84.

Leonard D. Skilling, M.D. Illinois, 1878, died at his home in Kiowa, Kan., Nov. 1, 1904, aged 88.

Deaths Abroad.

P. Gradenigo, M.D., the well-known professor of ophthalmology at Padua, Italy, died there December 1, aged 73. He belonged to a family which gave four doges to the republic of Venice, and in his scientific career he has always been one of the pioneers. His pupils had collected his works into a *Festschrift*, which was to have been presented to him this month in honor of the thirtieth year of his professorship. His favorite field of work was surgical operations on the eyes, and he devised many new ones and perfected others, among them the technic which allows extraction of a cataract without the tedious waiting for it to ripen, and his plastic operations on the lids and on the cornea. He proclaimed the importance of massage for the eyes as early as 1882, and in 1894 published examples of its efficacy in treatment of detachment of the retina. He also invented several instruments and founded and edited the leading Italian ophthalmic journal.

A. Reder von Schelmann, M.D., former professor of surgery and later of dermatology at Vienna, died there November 10, aged 79. He had been president of the Vienna Doktoren-Collegium since 1891.

O. Bode, M.D., a well-known Berlin surgeon and writer on surgical subjects, succumbed to professional blood poisoning November 25, aged 44.

A. S. Herrero, M.D., professor of clinical medicine at Madrid, died there November 28.

K. Koester, M.D., professor of pathology at Bonn, died there December 2, aged 62.

Book Notices.

THE PRINCIPLES AND PRACTICE OF GYNECOLOGY, for Students and Practitioners. By E. C. Dudley, A.M., M.D., President of the American Gynecological Society. Fourth Edition, Revised. With 409 Illustrations in Colors and Monochrome, of Which 18 Are Full-page Plates. Cloth. Pp. 771. Price, $5.00 net. Philadelphia and New York: Lea Brothers & Co. 1904.

One finds in this many changes from former editions. Much new matter has been added and much of the old has been thoroughly revised and rewritten. Of the greatest value are the four hundred illustrations. Most of these are new and they have been so well executed that they convey clearly the ideas intended. There can not be too many good illustrations, but poor ones are worse than none. The subdivision of the subject is a natural one and the subheads under the chapters have been conspicuously typed so that one may quickly turn to the particular point desired. The work is well arranged and published and, as the author's views are sound, it must take its place as one of the best text-books on the subject.

A SYSTEM OF PRACTICAL SURGERY. By Prof. E. von Bergmann, M.D., P. von Bruns, M.D., and J. von Mikulicz, M.D. Volume IV. Surgery of the Alimentary Tract. Volume V. Surgery of the Pelvis and Genitourinary Organs. Translated and Edited by William T. Bull, M.D., Professor of Surgery, College of Physicians and Surgeons, Columbia University, New York. Edward Milton Foote, M.D., Instructor in Surgery, College of Physicians and Surgeons, Columbia University, New York. Carleton P. Flint, M.D., and Walton Martin, M.D. Cloth. Pp. 758. Price, $30 per set, 5 volumes. New York and Philadelphia: Lea Brothers & Co. 1904.

Vols. I, II and III have already been reviewed in these columns. Vols. IV and V complete the work. The translation has been very liberal and at times the matter greatly condensed. The omission of the short bibliography which follows each prin-

cipal subject in the original is a distinct loss to the translated edition, a loss for which the slight saving in space does not at all compensate. Each volume has its own index beside a general index at the end of the fifth volume which covers fifty pages and which is complete, enabling one quickly to find any subject desired.

A MANUAL AND ATLAS OF MEDICAL OPHTHALMOLOGY. By Sir Wm. R. Gowers, M.D., F.R.S. Fourth Edition. Edited by the Author and Marcus Gunn, M.B., F.R.C.S., Surgeon to the Royal London Ophthalmic Hospital. Pp. 318. Illustrated. Cloth. Price, $4.00. Philadelphia: P. Blakiston's Son & Co. 1904.

This well-known text-book, which has for so many years been a work of standard reference for the ophthalmologist, the neurologist and the practitioner of general medicine, is now reprinted, with additions, for the third time. The text has not undergone many alterations since the third edition was published, but the colored illustrations have been omitted. We must confess that we regard this innovation, in the reproduction of ophthalmoscopic pictures especially, as a decided improvement. The autotype plates, in making no pretense of reproducing the coloration of the fundi, are at least not misleading (as the colored plates were) and furnish a good idea of the changes in and the appearance of the ocular background. The original drawings are in sepia by the author and the collaboration of Mr. Marcus Gunn, the well-known ophthalmic surgeon, has further enriched the book. This valuable manual ought to be in the hands of every physician who desires to possess the great advantage of a knowledge of ophthalmoscopy as an indispensable help in the diagnosis of general disease.

A TEXT-BOOK OF HISTOLOGY. By Frederick R. Bailey, A.M., M.D., Adjunct Professor of Normal Histology, College of Physicians and Surgeons. Profusely Illustrated. Cloth. Pp. 481. Price, $3.00 net. New York: Wm. Wood & Co. 1904.

A casual examination of this volume leads to the impression that it is to a certain extent an abridgement of a very popular work on histology by another author. A careful and thorough review strengthens this impression and leads us to make the statement that the larger work has apparently suffered in being thus abridged. Furthermore, the author makes the mistake, as have many other writers, of giving a general technic not at all suitable for the tyro and altogether too elementary and incomplete for the teacher and research worker. It assumes preliminary knowledge on the part of the reader and yet is simply the technic which has proved useful in the hands of the author. The directions for technic, however, which are appended to each chapter are commendable because they are such as will be a benefit to all entering on the study of this subject. So, too, the short embryologic references at the beginnings of chapters serve a useful purpose. Far too much space is devoted to the discussion of so unimportant a tissue as fat, while, on the other hand, the description of bone leaves much to be wished for. The special chapters devoted to the skeletal system and to the muscular system are merely useless repetitions; nor is there any need for discussing the articulations in a text-book on histology. The illustrations, many of which are original, are excellent, as is also the mechanical work as a whole.

CLINICAL URINOLOGY. By Alfred C. Croftan, Professor of Medicine, Chicago Post-Graduate Medical College and Hospital: Illustrated. Cloth. Pp. 298. Price, $2.50 net. New York: Wm. Wood & Co. 1904.

The author states in his preface that this book was not intended to be a mere laboratory guide, nor a purely clinical treatise, but a description of the borderland between the laboratory and the clinic. This purpose, on the whole, has been accomplished satisfactorily. The book has many advantages. It is brief. It is written by a physician who has had much more training in chemical examinations than practitioners on the average receive. The author has taken especial pains to interpret urinary findings clinically, so far as it is possible to do so at present, and this last is the feature of the book which will make it most attractive, we think, to the practitioner. The chapters dealing with albuminuria, the purin bases, glycosuria, acetonuria, the conjugate sulphates and glycuronates are modern and interesting. The inorganic constituents of the urine receive an unusual degree of attention, but deservedly so in the light of newer investigations which have revealed to us an importance of these substances hitherto unsuspected. A welcome chapter is that on the determination of the renal function in which are discussed the value of cryoscopy, the methylene-blue test, the phlorizin method and the toxicity of the urine as an index of renal activity. Here and there in this volume the dogmatic tone adopted jars a little, but dogmatism can be more easily condoned in a book of this kind than a wavering indecision. Now and then the choice of method might have been improved, we think; the convenient Hopkins method (as now modified) for estimating uric acid might well have taken the place of the unreliable Heintz method; Penzoldt's test for acetone with orthonitrobenzaldehyd is too good to be omitted; the reaction for indican with dimethylamidobenzaldehyd is perhaps the most delicate test we have for that body and should be included in another edition, along with, perhaps, fuller details rather than bare mention of the rather rough but clinically helpful methods of quantitative estimation of indican worked out by H. Straus and J. Bouma. The reliability of the fermentation test for glucose is scarcely sufficiently emphasized, while on the other hand the ease of differentiating the various crystalline ozazones by melting point determinations is exaggerated. The word "serin" used on page 10 as synonymous with serum albumin should no longer be employed in this way, since by "serin" chemists now understand a definite chemical compound, namely, alpha-amino-beta-oxypropionic acid. The "sodium nitrate" recommended in Arnold's test on page 107 appears to be a misprint for sodium nitrite. The book should have a distinct influence in stimulating interest in the newer studies of the urine and in making clear to the clinician the significance of the results which the chemical methods, especially of urinary examinations, are capable of yielding.

THE BOOKS OF A YEAR.

List of Books Published on Medical Subjects During the Year 1904.

The following is a list of the new books published in the United States in the year 1904. It may contain some books that were published before 1904, as we have had to depend on the replies of publishers to our letters and they may not have fully understood in every case the limits we desired to put on the list. Some books may have been omitted which should be here, but we have tried to make the list complete. Second editions or other republications are not included, nor are foreign books which are not issued under the imprint of an American publishing house.

Anatomy.

Anatomy of the Brain. J. F. Burkholder. Price, 2.00. Engelhard.

Laboratory Manual of Human Anatomy. Lewellys F. Barker. $5.00. Lippincott.

Treatise on Applied Anatomy. Edward H. Taylor. $9.00. Lippincott.

Bacteriology.

Bacteriology and the Public Health. George Newman. $5.00. Blakiston.

Clinical Diagnostic Bacteriology, Including Serum Diagnosis and Cytodiagnosis. Alfred C. Coles. $2.75. Blakiston.

Rabies, Its Place Among Germ Diseases and Its Origin in the Animal Kingdom. David Sime. 10½ shillings. Macmillan.

Chemistry.

Clinical Urinology. Alfred C. Croftan. $2.50. Wood.

Elements of Chemistry. M. M. Pattison Muir. $3.50. Blakiston.

Epitome of Inorganic Chemistry and Physics. A. McGlannan. $1.00. Lea.

Epitome of Organic and Physiological Chemistry. A. McGlannan. $1.00. Lea.

Examination of the Urine. G. A. de Santos Saxe. $1.50. W. B. Saunders.

Immune Sera. Hemolysins, Cytotoxins and Precipitins. A. Wassermann. $1.00. Wiley.

Manual of Clinical Microscopy and Chemistry. Herman Lenhartz. $3.00. Davis.

Outlines of Physiological Chemistry. S. P. Beebe and B. H. Buxton. $1.50. Macmillan.

Practical Physiological Chemistry. J. A. Milroy and T. H. Milroy. $1.60. Longmans.

Text-book of Quantitative Chemical Analysis by Gravimetric, Electrolytic, Volumetric and Gasometric Methods. J. C. Olsen. $4.00. Van Nostrand.

Toxicology. Edwin Welles Dwight. $1.00. Lea.

Uric Acid, an Epitome of the Subject. Alexander Haig. $1.00. Blakiston.

Diagnosis.

Manual of Serum Diagnosis. O. Rostoski. $1.00. Wiley.
Medical Laboratory Methods and Tests. Herbert French. $1.50. Keener.
Serums, Vaccines and Toxins in Treatment and Diagnosis. Wm. Cecil Bosanquet. $2.00. Keener.
Surgical Diagnosis. James Berry. $2.00. Blakiston.
Text-book of Clinical Diagnosis. L. Napoleon Boston. $4.00. Saunders.

Genitourinary, Cutaneous and Venereal Diseases.

Development and Anatomy of the Prostate Gland. W. G. Richardson. $3.75. Churchill.
Prostatic Hypertrophy. By C. M. Phillips and 40 Authors. $1.75. Mathews.
Social Diseases and Marriage. Social Prophylaxis. Prince A. Morrow. $3.00. Lea.
Syphilis and Gonorrhea. C. F. Marshall. $2.25. Redman.
Value of Ureteric Meatoscopy in Obscure Diseases of the Kidney. E. Hurry Fenwick. $2.50. Keener.

Histology.

Normal Histology. Jeremiah S. Ferguson. $5.00 Appleton.
Text book of Histology. Frederick R. Bailey. $3.00. Wood.

Hygiene.

Beauty Through Hygiene. Emma E. Walker. $1.00. Barnes.
Examination of Water and Water Supplies. John C. Thresh. $4.00. Blakiston.
Food Inspection and Analysis. Albert E. Leach. $7.50. Wiley.
Health and Disease in Relation to Marriage and the Marriage State. Vol. I. $7.00. Redman.
Health, Strength and Power. Dudley A. Sargent. $1.75. Caldwell.
Methods of Teaching Gymnastics. W. G. Anderson. $1.25. Hinds and Noble.
Physical Education by Muscular Exercise. Luther H. Gulick. 75 cents. Blakiston.
The Prevention of Disease. $7.50. Funk & Wagnalls.
Suppression of Tuberculosis. E. von Behring. $1.00. Wiley.
Weather Influences. Edwin Grant Dexter. $2.00. Macmillan.

Laryngology.

Adenoids. Wyatt Wingrave. $1.00. Keener.
Cleft Palate and Harelip. Edmund Owen. $1.00. Keener.

Materia Medica, Pharmacology and Therapeutics.

Action of Light as a Therapeutic Agent. Leonard K. Hirshberg. Snow & Farnham.
Diet in Health and Disease. Julius Friedenwald and John Ruhräh. Saunders.
Elements of General Radiotherapy for Practitioners. Leopold Freund. $5.00. Rebman.
Introduction to Pharmacognosy. Smith Ely Jelliffe. $2.50. Saunders.
Light Energy; Its Physics, Physiological Action and Therapeutic Applications. Margaret A. Cleaves. $5.00. Rebman.
Modern Practical Electricity. R. M. Walmsley. $12.00. Keener.
Philosophy of Therapeutics. Eldridge C. Price. $2.00. Nunn & Co.
Practical Dietetics. Diet in Health and Disease. A. L. Benedict. $1.50. Engelhard.
Radiotherapy, Phototherapy and High Frequency Currents. Charles Warren Allen. $4.50. Lea.
Roentgen Ray Diagnosis and Therapy. Carl Beck. $4.00. Appleton.
Self-cure of Consumption Without Medicine, with a Chapter on the Prevention of Consumption and Other Diseases. Charles H. Stanley Davis. Treat.
Text-book of Alkaloidal Therapeutics. W. F. Waugh and W. C. Abbott. $5.00. Clinic.
Text-book of Materia Medica. Robert A. Hatcher and Torald Sollman. $2.00. Saunders.
Therapeutics of Mineral Springs and Climates. I. Burney Yeo. $3.50. Keener.
Unconscious Therapeutics, or the Personality of the Physician. Alfred T. Schofield. $3.50. Blakiston.

Miscellaneous.

All Around Specialist. J. R. McOscar. $3.50. Keener.
Dictionary of New Medical Terms. George M. Gould. $5.00. Blakiston.
Appleton's Medical Dictionary. Edited by Frank P. Foster. $10.00. Appleton.
Doctor's Confession. Wm. Hinshaw. $1.25. Mathews.
Physician Versus Bacteriologist. O. Rosenbach. $1.50. Funk & Wagnalls.
Railway and Other Accidents. Allan M. Hamilton. $3.50. Wood.
Sexual Life. C. W. Malchow. $3.00. The Burton Co., Minneapolis.
Text book of Legal Medicine and Toxicology. Edited by Frederick Peterson and Walter S. Haines. $5.00. Saunders.

Nervous and Mental Diseases.

Epilepsy and Its Treatment. William P. Spratling. $4.00. Saunders.
Epitome of Nervous and Mental Diseases. Joseph Darwin Nagel. $1.00. Lea.
Force of Mind. A. T. Schofield. $2.00. Funk & Wagnalls.
Insanity in Everyday Practice. E. G. Younger. $1.00. Keener.
Lectures on Clinical Psychiatry. Dr. Emil Kraepelin. $3.50. Wood.
Mental Defectives: Their History, Treatment and Training. Martin W. Barr. $4.00. Blakiston.
Multiple Personality, an Experimental Investigation Into the Nature of Human Individuality. Boris Sidis and Simon P. Goodhart. $2.50. Appleton.
Nerves in Disorder. A. T. Schofield. $1.50. Funk & Wagnalls.
Outlines of Psychiatry. Charles Gilbert Chaddock. $2.50. Mathews.
Practical Treatise on Nervous Diseases. F. Savary Pearce. $6.00. Appleton.
Subjective Sensations of Sight and Sound, Abiotrophy and Other Lectures. William R. Gowers. $2.00. Blakiston.
Text-book of Insanity Based on Clinical Observations. R. von Krafft-Ebing. $4.00. Davis.
"The Blues," Causes and Cure. A Variety of Nerve Exhaustion so Largely Prevalent in Our Modern Life. Albert Abrams. $1.50. Treat.
Treatise on Diseases of the Nervous System. L. Harrison Mettler. $5.00. Cleveland Press, Chicago.

Obstetrics and Gynecology.

Atlas and Epitome of Operative Gynecology. O. Schaffer, edited with additions by J. Clarence Webster. $3.00. Saunders.
Mothers' Manual. Evelyn Lincoln Coolidge. $1.00. Barnes.
Obstetrics for Nurses. Joseph B. De Lee. $2.50. Saunders.
Physician's Practical Gynecology. W. O. Henry, Omaha. The Review Press, Lincoln, Neb.
Manual of Practical Ophthalmology. George A. Berron. Lippincott.

Ophthalmology.

Biographic Clinics. Vol. II. George M. Gould. $1.00. Blakiston.
Commoner Diseases of the Eye, How to Detect and How to Treat Them. Casey A. Wood and Thomas A. Woodruff. $1.75. Engelhard.
Diseases of the Eye. L. Webster Fox. $4.00. Appleton.
Hand-book of the Anatomy and Diseases of the Eye and Ear. D. B. St. John Roosa and A. Edward Davis. $1.00. Davis.
Manual of Practical Ophthalmology. George A. Berry, Lippincott.
Modern Ophthalmology. James Moores Ball. $7.00. Davis.
Ophthalmic Year-book. Edward Jackson. Herrick Book and Stationery Co., Denver.
Optical Dictionary. Edited by Charles Hyatt-Woolf. $1.00. Blakiston.
Pathology of the Eye. J. Herbert Parsons. Vol. I. Histology—Part 1. $3.50. G. P. Putnam.
Principles of Refraction in the Human Eye Based on the Laws of Conjugate Foci. Swan M. Burnett. $1.00. The Keystone, Philadelphia.
Strabismus or Squint. Francis Valk. $1.75. Putnam.

Pathology.

Atlas and Epitome of General Pathologic Histology. H. Dürck. $5.00. Saunders.
Friedberger and Frohner's Veterinary Pathology. Translated and edited by M. H. Hayes. $4.00. Keener.
Manual of Antenatal Pathology and Hygiene. The Embryo. J. W. Ballintyne. Wm. Green & Sons, Edinburgh.
Manual of Pathology. Sidney H. C. Martin. $4.00. Blakiston.
Text-book of Pathology. Joseph McFarland. $5.00 net. Saunders.

Pediatrics.

Adolescence. Vols. I and II. G. Stanley Hall. $7.50. Appleton.
Epitome of Pediatrics. Henry E. Tuley. $1.00. Lea.
Lectures on Diseases of Children. R. Hutchinson. $2.40. Longman.
Nutrition of the Infant. Ralph Vincent. $3.50. Wood.
Squint Occurring in Children. E. A. Browne and Edgar Stevenson. $1.00. Keener.
Summer Diarrhea of Infants. H. Illoway. $1.00. E. R. Pelton, New York.

Physiology and Embryology.

Blood Pressure as Affecting Heart, Brain, Kidneys and General Circulation. Louis Faugeres Bishop. $1.00. Treat.
Clinical Study of the Blood Pressure. Theo. C. Janeway. $3.00. Appleton.
Introduction to Vertebrate Embryology. Albert Moore Reese. $1.40. Putnam.
Lymphatics, General Anatomy of the Lymphatics. G. Delamere and P. Poirier. $5.00. Keener.
Manual of Experimental Physiology. Winfield S. Hall. $2.75. Lea.
Physiologic Economy in Nutrition. Russell H. Chittenden. Frederick A. Stokes Co., New York.
Physiology and Pathology of the Urine, with Methods for Its Examination. J. Dixon Mann. $3.00. Lippincott.
Recent Development of Physical Science. William C. D. Whetham. $2.00. Blakiston.
Text-book of Human Physiology. Albert P. Brubaker. $4.00 Blakiston.
Text-book of Physiology. Isaac Ott. $3.00. Davis.

Practice of Medicine.

Arrhythmia of the Heart. K. F. Wenkenbach. $4.50. Keener.
Beri-beri; Its Symptoms and Symptomatic Treatment. Percy Netterville Gerrad. $1.00. Blakiston.
Clinical Cases of Cancer of the Breast. Cecil H. Leaf. 80 cents. Keener.
Clinical Lectures and Essays on Abdominal and Other Subjects. H. D. Rolleston. $1.50. Blakiston.
Diseases of the Intestines and Peritoneum. Herman Nothnagel. $5.00. Saunders.
Diseases of the Liver, Gall Bladder and Bile Ducts. H. D. Rolleston. $6.00. Saunders.
Disorders of Metabolism and Nutrition. Carl von Noorden. Part V—Saline Therapy. 75 cents. Treat.
Graves' Disease With and Without Exophthalmic Goiter. William Hanna Thompson. $1.50. Wood.
Laboratory Studies in Tropical Medicine. C. W. Daniels. $4.00. Blakiston.
Lectures Chiefly Clinical and Practical on Diseases of the Lungs and Heart. James A. Lindsay. $3.50. Wood.
Lectures to General Practitioners on Diseases of the Stomach and Intestines. Boardman Reed. $5.00. Treat.
New Methods of Treatment. J. Laumonier. $2.50. Keener.
Practical Guide to the Administration of Nauheim Treatment in Chronic Diseases of the Heart. L. Thorne. $1.00. Keener.
Principles of Relief. Edward T. Devine. Macmillan.
Short Treatise on Anti-typhoid Inoculation. A. Wright. $1.25. Keener.
System of Clinical Medicine. Thomas D. Savill. Vol. I and II. $4.50. Keener.

Treatment of Some Acute Visceral Inflammations. David B. Lees. $1.50. Blakiston.

Tuberculosis and Acute General Miliary Tuberculosis. G. Cornet. $5.00. Saunders.

Surgery.

Aseptic and Antiseptic Preparations and Treatment of Emergencies After Abdominal Surgical Operations. G. Wackerhagen. $1.00. E. R. Pelton, 19 E. 16th St., New York.

Case Teaching in Surgery. Herbert L. Burrell and John Bapst Blake. 75 cents. Blakiston.

Closure of Laparotomy Wounds as Practiced in Germany and Austria. Edited and translated by Walter H. Swaffield. Blakiston.

"First Aid" Hand Book. M. J. Shields, Carbondale, Pa. Published by the Office of Thomas Boundy, Jermyn, Pa.

Gallstones and Their Surgical Treatment. B. G. A. Moynihan. $4.00. Saunders.

Hand Book of Surgery. Frederick R. Griffith. $2.00. Saunders.

Handbook of Surgical Anatomy. G. A. Wright and C. H. Preston. $1.50. Blakiston.

Manual of Fever Nursing. Reynold Webb Wilcox. $1.00. Blakiston.

Manual of Intragastric Technique. George Herschell. $2.50. Keener.

Regional Minor Surgery. George Gray Van Schaick. $1.50. International Journal of Surgery Co., 100 William St., New York.

Surgery. A Manual for Students and Practitioners. M. D'Arcy Magee and Wallace Johnson. $1.00. Lea.

Surgery of the Diseases of the Appendix Vermiformis and Their Complications. W. H. Battle and E. M. Corner. $2.50. Keener.

Surgery of the Heart and Lungs. Benjamin Merrill Ricketts. $5.00. The Grafton Press, New York.

Surgical Anatomy of the Head and Neck. John B. Deaver. $12.00. Blakiston.

Surgical Emergencies. The Surgery of the Abdomen. Part 1. Bayard Holmes. $2.00. Appleton.

Surgical Treatment of Bright's Disease. George M. Edebohls. $2.00. Frank F. Lisiecki, New York.

System of Practical Surgery. By E. von Bergmann, P. von Bruns and J. von Mikulicz. Vol. I. Surgery of the Head. Vol. II. Surgery of the Neck, Thorax and Spinal Columns. Vol. III. Surgery of the Extremities. Vol. IV. Surgery of the Alimentary Tract. Vol. V. Surgery of the Pelvis and Genito-urinary Organs. $6.00 per volume. Lea.

Wounds in War. W. F. Stevenson. $5.00. Longman.

Publishers.

Below are the full names of the publishers to whom reference is made in an abbreviated manner.

D. Appleton & Co., 436 5th Ave., New York.
P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia.
A. S. Barnes & Co., 156 5th Ave., New York.
H. M. Caldwell Co., Boston.
Clinic Publishing Co., Ravenswood Station, Chicago.
The F. A. Davis Co., 1914 Cherry St., Philadelphia.
G. P. Engelhard & Co., 358 Dearborn St., Chicago.
Funk & Wagnalls, 44-60 E. 23d St., New York.
Hinds & Noble, 31 W. 15th St., New York.
W. T. Keener & Co., 90 Wabash Ave., Chicago.
Lea Bros. & Co., 706 Sansom St., Philadelphia.
J. B. Lippincott Co., 227 S. 6th St., Philadelphia.
Longmans, Green & Co., 91 5th Ave., New York.
The Macmillan Co., 66 5th Ave., New York.
Lewis S. Mathews & Co., 2623 Olive St., St. Louis.
G. P. Putnam's Sons, 27 W. 23d St., New York.
The Rebman Co., 70 W. 23d St., New York.
The Saalfield Publishing Co., Akron, Ohio.
W. B. Saunders & Co., 925 Walnut St., Philadelphia.
Snow & Farnham, Providence, R. I.
E. B. Treat & Co., 241 W. 23d St., New York.
D. Van Nostrand Co., New York.
John Wiley & Sons, 43 E. 19th St., New York.
Wm. Wood & Co., 51 5th Ave., New York.

State Boards of Registration.

COMING EXAMINATIONS.

Wisconsin Board of Medical Examiners, Hotel Pfister, Milwaukee, January 9-11. Secretary, Filip A. Forsbeck, M.D., Milwaukee.

State Medical Board of the Arkansas Medical Society, Little Rock, January 10. Secretary, J. R. Runyan, M.D., Little Rock.

Indiana State Board of Medical Registration and Examination, State House, Indianapolis, January 10-12. Secretary, W. T. Gott, M.D., Crawfordsville.

Vermont State Board of Medical Censors, Y. M. C. A. Building, Burlington, January 11-12. Secretary, S. W. Hammond, M.D., Rutland.

Board of Medical Supervisors of the District of Columbia, Washington, January 12. Secretary, Wm. C. Woodward, M.D., Washington, D. C.

Illinois State Board of Health, The Great Northern Hotel, Chicago, January 19-21. Secretary, J. A. Egan, M.D., Springfield.

New York—Three Medical Boards, New York, Albany, Syracuse and Buffalo, January 24-27. H. J. Hamilton, Education Department, Albany.

New Hampshire State Boards, University Club, Concord, February 1-2. Regent, Henry C. Morrison, Concord.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

New Mexico Medical Board Can Not Examine.—Solicitor General G. W. Pritchard has given it as his opinion that the present medical-practice law in New Mexico does not authorize examinations. Therefore, an applicant who can not present satisfactory evidence that he is a graduate of a medical college in good standing can not be licensed. The opinion further upholds the right of the board to exercise discretion as to what colleges are "in good standing," taking into consideration clinical opportunities, etc.

Utah October Report.—Dr. R. W. Fisher, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, October, 1904. The number of subjects examined in was 20; total questions asked, 120; percentage required to pass, 75. The total number examined was 12, of whom 8 passed and 4 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Chicago Homeo. Med. Coll.	(1879)	85.8
Univ. of Colorado Med. Dept.	(1904)	83.3
College of P. and S., Baltimore	(1904)	80.3
St. Louis Univ., Med. Dept.	(1904)	76.7
Rush Medical College	(1900)	87.3
Univ. of Toronto, Canada	(1893)	88.7
Denver and Gross Med. Coll.	(1903)	78.5
Tufts Med. Coll., Boston	(1904)	86.5
FAILED.		
American Med. Coll., St. Louis	(1885 67.3*, (1898)	72.6
Coll. of Med. and Surg., Chicago	(1903)	72.6
Rush Medical College	(1903)	74

*Second examination.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Dec. 31, 1904:

Smart, Robert, asst.-surgeon, leave of absence extended fourteen days.

Hall, John D., asst.-surgeon general, relieved from duty in Philippine Division and ordered to proceed to San Francisco and report on arrival to the military secretary for further orders.

Jones, Percy L., asst.-surgeon, relieved from duty on transport *Sumner* and ordered to report at Medical Supply Depot, New York City for temporary duty, to examine medical supplies now being delivered at that depot.

Buck, Carroll D., asst.-surgeon, granted ten days' leave of absence on being relieved from duty with First Battalion Philippine Scouts, World's Fair Grounds, St. Louis, and Dec. 24, 1904, assignment to duty at Fort Des Moines, Iowa, changed to Fort Leavenworth, Kan.

Shook, Jay R., asst.-surgeon, relieved from duty at Fort Leavenworth, Kan., and ordered to Fort Des Moines, Iowa.

Brown, Henry D., contract surgeon, returned to Fort Worden, Wash., December 19, from leave of absence.

Freeman, Charles E., contract surgeon, assigned to temporary duty at the Depot of Recruits and Casuals, Fort McDowell, Angel Island, Cal.

Kellogg, Preston S., contract surgeon, returned to duty at Fort Robinson, Neb., December 18, from leave of absence.

Bell, Leonard P., and Hansen, Morris J., contract surgeons, returned to duty at San Francisco December 19 from leave of absence, and will sail for the Philippines December 31.

Lemmon, Robert, contract surgeon, ordered from Fort DuPont, Del., to Fort Terry, New York, for temporary duty, and on its completion, to his proper station, Fort McKinley, Me.

McMillan, Clemens W., contract surgeon, granted leave of absence for fifteen days about Jan. 10, 1905.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Dec. 31, 1904:

Grunwell, A. G., surgeon, detached from the *Dixie* and ordered to the Naval Hospital, New York, for treatment.

Ledbetter, R. E., P. A. surgeon, detached from the *Lancaster* and ordered to the *Dixie*.

Kennedy, J. T., P. A. surgeon ordered to the Naval Station, Guantanamo, Cuba, and to additional duty on the *Amphitrite*.

Page, J. E., P. A. surgeon, ordered to the *Lancaster*.

Means, V. C. B., surgeon, ordered to the Naval Hospital, Philadelphia.

Bell, W. L., P. A. surgeon, when discharged from treatment at the Naval Hospital, New York, ordered home and granted sick leave for three months.

Janney, W. H., A. A. surgeon, detached from the *Marcellus* and ordered to the *Cæsar*.

Grove, W. B., surgeon, detached from the *Atlanta* and ordered home to wait orders.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and noncommissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Dec. 28, 1904:

Smith, A. C., surgeon, detailed as inspector of unserviceable property at Camp Hutton, La.

Rosenau, M. J., P. A. surgeon, detailed to represent the Service at the Second Annual Mosquito Exterminating Convention, New York, Dec. 16-17, 1904. Detailed to represent the Service at the annual meeting of the Society of American Bacteriologists at Philadelphia, Dec. 27 28, 1904.

Von Ezdorf, R. H., P. A. surgeon, to report in person to Rear Admiral Walker, U. S. N., for duty in connection with quarantine in the Isthmian Canal Zone, Republic of Panama.

McClintic, T. B., P. A. surgeon, granted leave of absence for five days from Dec. 27, 1904, under Paragraph 191 of the Regulations.

Korn, W. A., P. A. surgeon, granted leave of absence for seven days.

Berry, T. D., asst.-surgeon, to proceed to Perth Amboy, N. J., and assume temporary charge of Service during absence on leave of P. A. Surgeon W. A. Korn.

Salmon, T. W., asst.-surgeon, to report at the Bureau, Washington, D. C., for special temporary duty.

BOARD CONVENED.

Board convened to meet at the Hygienic Laboratory, Washington, D. C., on call of the chairman, for the examination and marking of applications for appointment as technical assistants in zoology, chemistry and pharmacology. Detail for the board: P. A. Surgeon M. J. Rosenau, Director of Hygienic Laboratory, chairman; Ch. Wardell Stiles, Chief of Division of Zoology; Reid Hunt, Chief of Division of Pharmacology, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended Dec. 30, 1904:

SMALLPOX—UNITED STATES.

Florida: Jacksonville, Dec. 17-24, 1 case.
Illinois: Chicago, Dec. 17-24, 20 cases, 1 death; Springfield, Nov. 28-Dec. 21, 5 cases.
Kentucky: Louisville, Dec. 15-22, 1 case.
Louisiana: New Orleans, Dec. 18-24, 7 cases, 4 imported.
Michigan: At 70 localities, Dec. 10-17, present.
Minnesota: Meeker Co., Dec. 21-19, 1 case; Dec. 12-19, Otter Tail Co., 1 case; Rice Co., 12 cases; Wilkin Co., 1 case.
New Jersey: Camden, Dec. 18-24, 1 case.
New York: New York City, Dec. 18-24, 1 case.
Ohio: Cincinnati, Dec. 16-23, 2 cases.
Pennsylvania: Dec. 17-24, Johnstown, 1 case; Philadelphia, 1 case.
South Carolina: Charleston, Dec. 10-17, 2 cases.
Tennessee: Nashville, Dec. 17-24, 4 cases.
Washington: Nov. 1-30, Pierce Co. (including Tacoma), 2 cases; Walla Walla Co., 5 cases; Seattle, 1 case.
Wisconsin: Milwaukee, Dec. 10-24, 40 cases.

SMALLPOX—FOREIGN.

Argentina: Bahia Blanca, Nov. 18, present; Buenos Ayres, Sept. 1-30, 22 deaths.
Austria: Prague, Nov. 26-Dec. 3, 18 cases.
Brazil: Bahia, Nov. 12-26, 28 deaths; Rio de Janeiro, Nov. 6-27, 373 cases, 160 deaths.
Ecuador: Guayaquil, Nov. 30-Dec. 7, 3 deaths.
France: Lyon, Nov. 20-Dec. 3, 1 case; Paris, Dec. 3-10, 9 cases.
Great Britain: Glasgow, Dec. 8-16, 2 cases; London, Nov. 26-Dec. 10, 3 cases; Dec. 3-10, Newcastle-on-Tyne, 21 cases; Nottingham, 3 cases; South Shields, 2 cases.
India: Bombay Nov. 22-29, 5 deaths; Calcutta, Nov. 19-26, 2 cases.
Italy: Palermo, Nov. 26-Dec. 10, 33 cases, 15 deaths.
Russia: Odessa, Nov. 26-Dec. 3, 1 case.
Turkey: Constantinople, Nov. 27-Dec. 4, 15 deaths.

YELLOW FEVER.

Ecuador: Guayaquil, Nov. 25-Dec. 7, 3 deaths, 1 case on S. S. *Limari* at Puna from Panama.
Mexico: Contzacoalcos, Dec. 10-17, 2 cases; Juchitan, Dec. 11-17, 1 case.
Panama: Panama, Dec. 12-19, 3 cases.

Medical Organization.

ORGANIZATION WORK NEEDED IN KANSAS.

J. N. McCormack, M.D.

CHAIRMAN OF THE COMMITTEE ON ORGANIZATION.
BOWLING GREEN, KY.

Although a majority of the physicians met by me in Kansas compare favorably with their brethren in the older states, and in spite of the fact that 800 of the 2,600 physicians are enrolled as members of the state society, outside of Wichita, where an excellent city society has existed for two years, the profession is practically unorganized in every section visited by me.

There are the usual local dissensions in most sections, but the condition most noticeable and most impressive to a stranger is the almost universal and absolute indifference to every professional interest which is not strictly and immediately personal. As would be expected from the foregoing statements, all the evils of commercialism are pronounced in such sections, including rate-cutting, commissions by surgeons, and the various questionable methods of securing practice, associated, as these evils always are in my experience, with a lack of financial prosperity in the rank and file of the profession, in striking contrast to the commercial wealth of the country. In some rich towns and counties one could not but be impressed with the idea that the country is developing more rapidly than the profession, and that systematic postgraduate work and a general awakening are necessary for the good of both the profession and the public.

District societies, overlapping each other in every direction, and supported by a few of the best men, had formerly assumed proportions not found elsewhere, all of them doing really excellent work, but none of them reaching, interesting nor benefiting the mass of the profession. Until two years ago some of these were as large as the state society—which, before that time, was practically confined to the northeastern section of the state—and were organized and run in a spirit of more or less distinct rivalry and antagonism to that body. Add to this the fact that there has been no co-operation between the State Board of Medical Examiners and the State Board of Health and the State Medical Society, that the officers and members of these boards, who should be selected, or at least nominated to the appointing power, by the organized profession, as its executive agents, seldom even attend the meetings of the society, and that the officers of the latter body have heretofore done little more than to issue a program for, and to perform the routine duties incident to, the annual meeting, with no real county societies anywhere, and there will be little difficulty in accounting for existing conditions.

What is needed in Kansas is zealous, personal, self-sacrificing labor, not only on the part of the councilors and of the other officials of the state society, but of all who can be induced to assist them from Topeka, Wichita, Kansas City, Hutchison and elsewhere, until a real, live society exists in every county containing five or six physicians, to make a practical study of and to promote the interests of every member and citizen of the jurisdiction.

First, the president and secretary of the state society need to wake up to the importance of their positions, as similar officers have done in other states, and to assist and to encourage the councilors in the onerous and difficult duties so that they may be able to complete the tasks set for them before the next meeting. The state journal is doing excellent work, and Dr. Furst has accomplished much in his district, but most of the other councilors have done practically nothing. I found that they had expected to organize county societies by a desultory correspondence and were despondent because they had had less tangible results than children usually do who send letters up the chimney to Santa Claus before Christmas. Such an organization as is demanded by the best interests of the profession and of humanity involves intelligent thought, labor and expense on the part of those charged with the duty. My meetings were well attended considering the short and imperfect notice it was possible to give, and the interest and enthusiasm manifested everywhere indicated that the profession was ripe for a real reform if those chosen to lead the movement can be induced to put some spirit into their work and push into effect the comprehensive methods which have proven so effective elsewhere.

The great natural wealth of Kansas, and the rapid encroachment being made on the arid sections by cultivation and tree growth, must make it one of the foremost states in the union. Although often there before, this was impressed on me more forcibly during this trip, traveling chiefly in the daytime, and often riding for hundreds of miles over fertile plains stretching out to the sky-line as rich as the famous Blue Grass regions. With proper organization, possible only through such a system of local societies as will bring the physicians of each community into fellowship and co-operation for their own and the public good, the future of the medical profession is as promising as that of the country.

IN MISSOURI.

My western trip ended with a meeting at Kansas City in the evening of December 2. Although a meeting called on short notice, with limited information as to its purpose, the attendance, and more especially the active and appreciative spirit with which the work was taken up, admirably indicated the influence which a good society, holding weekly meetings, will exert in any community. In the frank discussion which followed my talk it was shown that, while there is much to be done in that city even locally, so much has already been done, and the personal relations and enthusiasm in the large, active working force are such that anything is possible of accomplishment by a more extensive and searching utilization of the forces at the command of the profession. Both the city and state are overrun with quackery to an unusual degree, and my information is that professional conditions are bad in many counties in Missouri, but if St. Louis and St. Joseph will join hands with Kansas City and with the officers and councilors of the state association in earnest work, the foundation can be laid for remedying all of these evils before the next annual meeting.

Society Proceedings.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, held in Milwaukee, Wis., Dec. 28-29, 1904.

The President, Dr. Charles H. Mayo, Rochester, Minn., in the Chair.

Officers Elected.

President, Dr. H. D. Niles, Salt Lake City, Utah; vice-presidents, Drs. E. Wyllys Andrews, Chicago, and W. W. Grant, Denver; secretary-treasurer, Dr. B. B. Davis, Omaha.

Kansas City, Mo., was selected as the place of meeting in 1905, with Dr. H. C. Crowell as chairman of the committee of arrangements.

Stone in the Kidney.

DR. A. L. WRIGHT, Carroll, Iowa, drew the following conclusions:

1. Kidney stone may occur at any time of life, from the earliest to ripe old age. 2. These stones are the most frequent, and give rise to the greatest amount of suffering of any form of surgical disease of the kidney. The clinical manifestations of kidney stone do not depend on its size. A small stone, just large enough to prevent its escape, and composed of oxalate of lime, will cause more suffering and damage to the kidney parenchyma than a very much larger deposit of softer formation, as well as completely disable the patient while the destructive changes are taking place, although the clinical symptoms are not intensely active. 3. While generally unilateral, stone occasionally occurs in both kidneys, or the reflex symptoms may point most prominently to the sound kidney, the stone being found not infrequently on the side free from pain. 4. Diagnosis is not difficult in the typical cases, but the stone remaining quiescent in some for an indefinite period makes recognition almost impossible. 5. Owing to the fact that kidney stone may put on the livery of infectious diseases, the diagnosis is difficult, if not impossible, in those cases where the classical symptoms are absent. 6. There are few diseases of the kidney more certainly fatal, when left to themselves, and more successfully treated when encountered by proper surgical interference, arresting the destructive changes taking place in the kidney, and restoring the viscus to its physiological functions.

DISCUSSION.

DR. ALEX. HUGH FERGUSON, Chicago, said that pain is sometimes very deceptive. It is both local and referred; local in the region of the kidney itself, and referred to different parts of the body, chiefly along the genito-urinary tract toward the testicle; sometimes toward the midline of the abdomen; at other times toward the ensiform cartilage in the region of the gall bladder and duodenum, and not infrequently it is referred to the back. Pain is caused in nearly all cases at first, when there is no septic urine, by stretching of the pelvis of the kidney and of the kidney tissue, the calices, etc. A quiescent stone does not always cause colic, although it frequently gives rise to referred pain. In the diagnosis one should consider tumor of the kidney, recurrent attacks of interstitial nephritis, and tuberculosis of the kidney. The *x*-ray is one of the best diagnostic aids. Dr. Ferguson called attention to the dangers incident to the passage of such instruments as the segregator, cystoscope, etc.

DR. W. D. HAINES said he had made over two thousand autopsies, and in about 50 per cent. of the cases he found stones of variable sizes in the kidney. In those few cases in which the history could be traced, it was surprising to find how infrequently symptoms referable to the kidney were complained of. In treating these cases surgically, one of the principal things to determine is the presence of a kidney on the opposite side.

DR. WRIGHT maintained that the pain is inflammatory in character, and is not due to stretching of the kidney tissue. Many kidneys are opened, where the clinical manifestations indicate the existence of stone, but none is found, except possibly a little debris. Furthermore, where the deposit consists of oxalate of lime, the pain is very excruciating. The stone is too large to engage in the ureter, but not large enough, however, to stretch the pelvis or parenchyma of the kidney, or to produce any stretching effect whatever. He believes the same is true of kidney stone as of gallstone, the pain not being due to the passage of the stone, but to an inflammatory reaction. When such kidneys are opened and drained, relief is prompt, even when no stone or stones are found.

Newer Aids to Diagnosis in Diseases of the Urinary Tract.

DR. M. L. HARRIS, Chicago, arranged the newer aids to diagnosis in diseases of the urinary tract in the following order, according to their value: (1) The cystoscope. (2) Ureteral catheterization or segregation, with comparative analyses of the separate urines. (3) The *x*-ray. (4) The phloridzin test. (5) Comparative cryoscopy of the separate urines. (6) Cryoscopy of the blood, with the necessary corrections made.

DISCUSSION.

DR. B. B. DAVIS asked whether the essayist had observed temporary anuria in any of the cases, enough to interfere materially with the value of the test. Dr. Davis related a case in which temporary anuria followed the use of the segregator.

DR. HARRIS said he had observed temporary anuria in a number of instances, lasting sometimes a few minutes, sometimes ten or fifteen minutes, and sometimes as long as thirty or forty minutes, but how long it would have lasted had the examination been continued he does not know. Temporary anuria, however, is exceptional. He has also seen temporary anuria follow the introduction of the ureteral catheter, lasting for several hours, or until the catheter was withdrawn.

Methods of Exploring the Abdomen, and a New One.

DR. ALEX. HUGH FERGUSON, Chicago, stated that in the daily round of work the surgeon meets cases requiring colpotomy, anterior or posterior, to remove myomata, or cysts, and that these cases often give a history of stomach, gall-bladder, kidney or bowel disturbances. An examination of the abdominal organs is highly satisfactory, although oftentimes one hardly feels justified in opening through the abdominal wall for that purpose. The problem is solved by passing the hand and entire forearm into the abdominal cavity through the vagina. In order to furnish enough space for this purpose it is imperative to cut through the mucous membrane of the vagina its whole length on each side postlaterally. The mucous membrane being severed, the other structures will stretch at once. The bare arm, being smeared over with sterile vaselin, glides in with ease. He has within the last three years passed his hand through the vagina to the diaphragm, and palpated all the abdominal organs. In one case, after detecting gallstones, he cut down upon the gall bladder and pushed it, full of biliary calculi, through a buttonhole incision in the abdominal wall. In another case, a cancer of the rectum, he passed his hand and detected cancer of the liver and gall bladder. In a third case the vaginal outlet was so small that a digital examination could not be made without an anesthetic. He found cancer of the posterior lip of the cervix. He passed his hand through an anterior colpotomy, after having slit the vagina on each side, and found a hard tumor, evidently cancerous, on the anterior surface of the stomach. The lymphatics were also extensively invaded.

DISCUSSION.

DR. R. C. COFFEY asked under what circumstances the essayist would make such an exploration as he had described, inasmuch as the vagina can not be thoroughtly sterilized, and since an abdominal incision is fraught with so little danger.

DR. A. L. WRIGHT spoke disparagingly of this method of exploration. He questioned the possibility of being able to render the vagina aseptic. The method impressed him as being much more formidable, and attended with more danger than an abdominal incision.

DR. C. O. THIENHAUS called attention to the method employed by Ott, who introduces an electric light through the vagina into the abdomen, at the same time using one on his forehead, with which he can explore the abdominal cavity.

and see diseases with the eye which can not possibly be diagnosed otherwise, and are dealt with accordingly.

Peritoneal Adhesions, Their Cause and Prevention.

DR. ARTHUR E. HERTZLER, Kansas City, Mo., studied peritoneal adhesions by means of a small glass window sewed into the lateral abdominal wall of an animal. Peritoneal surfaces may agglutinate without a destruction of the endothelial layer. In true adhesions the endothelial layers are always destroyed. If the basement membrane is not destroyed, the adhesions may separate after a time. If the basement membrane is destroyed, the union is formed by a true growth of fibrous tissue, and is permanent. Ordinary adhesions are formed by fibrin formation, with a loosening of the cement substance of the basement membrane, and an interlacing of the fibers forming the basement layer. This forms in from twelve to eighteen hours. The formation of peritoneal adhesions depends on the same factors as does blood coagulation. The irritation of the surface destroys the endothelium, permitting the escape of fibrinogen-forming fluid. The CaCl is abundant immediately below the endothelial cells, as may be demonstrated with silver nitrate. The escape of the leucocytes from the vessels activates the proferment, and makes it active. The precipitate of fibrin thus formed is identical with that formed in blood coagulation, as may be demonstrated by the fact that those factors which prevent coagulation also prevent peritoneal adhesions. The agents most employed are phosphorus and peptone. The former prevents the formation of adhesions by destroying the fibrinogen, the latter by acting on an antiferment. The presence of a digestive ferment in the upper intestinal tract explains why adhesions form less readily in spontaneous perforations in this region.

(To be continued.)

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

(Continued from page 1988 of last volume.)

Unveiling Exercises.

The monument erected by the association to its founder, the late Dr. W. E. B. Davis, was unveiled in Capitol Park with fitting ceremonies, December 14, at 11 o'clock, in the presence of about 5,000 people, including the members of the association. After an invocation by Rev. Dr. L. S. Handley, Dr. Charles M. Rosser of Dallas, Texas, was introduced and delivered the address of presentation of the statue. The statue was unveiled by Elizabeth and Margaret Davis, the little daughters of the beloved physician. Dr. R. M. Cunningham, acting governor of the state of Alabama, accepted the statue in behalf of the state in an eloquent address in which he paid a glowing tribute to this great physician. The statue, in behalf of the city of Birmingham, was accepted by Hon. John C. Forney, the representative of Mayor Drennan, who was unavoidably absent.

A Method of Uniting Intestines of Very Small or of Unequal Caliber.

DR. J. SHELTON HORSLEY, Richmond, Va., said that modifications of sutures may be divided into two general classes, the continuous and the interrupted. Taking it for granted that each suture penetrates all coats of the intestines, he demonstrated experimentally that the continuous suture more nearly fulfills the ideal conditions for intestinal healing than the interrupted suture. Serous surfaces unite after being sutured, on account of the hyperemia of repair, and this is dependent on some slight injury to the peritoneum. In the case of an interrupted suture, union is obtained within the bite of the suture, by hyperemia caused by pressure of the suture, by the trauma of the needle, and by the presence of the thread. Between the sutures the pressure from thin intestinal tissues is practically *nil*, so union depends solely on extension of this hyperemia, and if this process does not extend from one stitch to another, leakage will surely occur. If continuous and moderate pressure is made on two serous surfaces, sufficient injury will be done those surfaces to cause adhesions. This continuous pressure along the entire margin of an intestinal wound can be obtained only by the continuous suture.

He described nine experiments in which an area of intestine was included between two lines of sutures. In only four of these did the whole area between the rows of sutures unite, demonstrating that something beside mere approximation of serous surfaces is necessary for satisfactory union. The intestinal ends to be united are placed side by side with their convex borders in contact and clamped with a hemostatic forceps. Then he uses a suture that passes through the whole of the intestinal wall, sewing together with a continuous stitch a crescentic area excised; then, changing the stitch to a Cushing right-angled continuous suture penetrating all the coats and invaginating the remaining margins of the wound. When the first knot is reached in the suture, it is invaginated, and the suture continued by two or more insertions of the needle; with the last two insertions as secure a hold as possible is obtained without penetrating the mucosa. The very last insertion of the needle is in the reverse direction of the other insertions, so that when the knot is tied it is partly buried. The bowel is then returned to its natural position, and the mesentery sewed up with continuous stitches.

DISCUSSION.

DR. W. P. CARR, Washington, D. C., stated that the holding of the bowel with a clamp, a rubber ligature, or tape to prevent the escape of intestinal contents during operation is the only part of intestinal suture that seems not to be as perfect as it might be. There is more or less danger of injuring the bowel by a clamp or ligature which is put around it tight enough to prevent the intestinal contents from escaping. The Murphy button or any form of clamp might possibly do this at times, particularly if the bowel is already more or less inflamed at the time of operation. He thinks it is better to have an assistant hold the bowel with the fingers when this is possible, although it facilitates the operation very much to take the bowel in a long clamp not far from the point where it is going to be sutured, as it prevents the sliding of the coats of the bowel over each other.

DR. HERMAN J. BOLDT, New York City, prefers suturing to using buttons or mechanical devices.

DR. J. M. T. FINNEY, Baltimore, has found that there are certain technical difficulties to the end-to-end suture which are hard to overcome. For example, at the mesenteric border it is difficult to obtain satisfactory union; there is so much likelihood that a leak will occur there, that it has been his practice for the last two years to use, almost exclusively, lateral anastomosis, closing both ends. This gives more satisfactory union. He advocates the interrupted suture.

DR. A. PALMER DUDLEY, New York City, uses the continuous suture and has obtained good results.

DR. W. S. GOLDSMITH, Atlanta, Ga., believes that in placing continuous sutures around the bowel, where there is likely to be distention, leakage may result, and a fistula be produced by tissue necrosis incident to bowel distention on account of the application of this ligature. He prefers the interrupted suture, although not so rapid for use, thus minimizing the pressure owing to distention or dilatation of the gut.

DR. SAMUEL J. MIXTER, Boston, said that the continuous suture is quicker. He emphasized the necessity of everybody practicing these operations on lower animals before doing them on patients. Every new method should be tried on the lower animals. He thinks very little clamping is necessary, even if there is some leakage. He does not consider that there is any great danger from septic peritonitis following, because the peritoneum is able to stand a great deal of soiling without much damage, and it can be washed off without producing any ill-effects. This is likewise true of operations on the stomach.

The Abuse of Purgatives Before and After Abdominal Section.

DR. I. S. STONE, Washington, D. C., said that purgatives should be given as evacuants and should not produce hypercatharsis, whether administered before or after abdominal section. The excessive purgation hypercatharsis commonly employed is intended not only to empty the bowels, but to perform additional service, namely, to remove collections of serum or other fluids which may be in the peritoneal cavity.

A large majority of the sections made at the present time may be called minor pelvic or minor abdominal. In these no infection exists nor is the intestine in any way involved. Such cases require only the mildest evacuants, with sterile diet in the preliminary treatment. Vomiting, paresis, ileus, and excessive distension of the abdomen after operation are frequently exaggerated and aggravated by the administration of the worse than useless cathartics which are usually given. No remedy has been discovered for vomiting due to anesthesia, and this fact should interdict the annoyance given patients by using purgatives before normal peristalsis has been restored. The only remedy of value for vomiting is the regulation of stomach contents, both as to character and quality of substances ingested. It has been shown that patients have bowel movements after surgical operations because they are ready to act rather than because one has found any method to produce such results. Hypercatharsis does more than anything short of venesection, or the use of dangerous heart depressants, to unfit patients for prolonged anesthesia and operations. The prompt administration of purgatives after operation appears to cause vomiting and reversed peristalsis, and adds to the general discomfort of the patient. If the intestines are not actually scoured by catharsis and have only been fairly well emptied of excess of gas and fecal matter, they will respond to treatment after operation with far greater ease than when made absolutely empty.

A Review of the Treatment Immediately Before and After Abdominal Section.

DR. L. S. MCMURTRY, Louisville, said that the general indications for preparatory treatment in cases of abdominal section were to cleanse the alimentary canal thoroughly without violent disturbance or exhaustion, to put all the eliminative functions in the best possible condition, and to favor in every way a tranquil state of mind and body. More than a year ago he became satisfied that to put the patient to bed for three days, or even longer, as was practiced by many, was not the best course of preparatory treatment. There is a positive advantage in having the bowels cleaned out in a relatively short time, as the patient is not relaxed by purgation and is less prone to suffer from toxic changes. Prolonged and irritating catharsis increases the nausea and vomiting of ether and of chloroform anesthesia. A prolonged period of preparatory treatment impairs the patient's strength and depresses the nervous system.

In the cleansing and disinfection of the skin we must accept at the outset the established fact that sterilization of the skin from a bacteriologic standard is impossible; yet mechanical cleansing will, for all practical purposes, free the skin of all active germ action and provide for immediate primary union of wounds. In the effort to accomplish this the important fact has been overlooked that the unbroken skin is endowed with a power of resistance to the activity of its own and other germs, and when the epidermis is cracked, denuded and broken by irritating germicides and scrubbing with hard brushes, this natural resistance is impaired and infection occurs. Mechanical cleansing will remove germs readily from smooth and unbroken cutaneous surfaces. For these reasons the brush and chemical germicides should be discarded and only soap and water and alcohol should be used, applying these with gauze instead of the brush.

In the after-treatment only the most simple course is necessary in average cases. The routine use of purgatives is to be avoided. The patient should be allowed to move about in bed freely, and should be given water as soon after operation as it can be retained.

The Employment of Celluloid Plates for Covering Openings in the Skull in Operations for Epilepsy, Brain Tumor, Etc.

DR. WILLIAM P. NICOLSON, Atlanta, Ga., summarized this subject as follows: 1. Celluloid is safe and does not add any extra risk to the operation. 2. It not only removes the pressure and irritation which the surgeon is endeavoring to combat, but by its resistance prevents a recurrence from the subsequent consolidation of the coverings in a false position due to atmospheric pressure. 3. It protects the patient from external influences, and not only makes him feel safer, but he is actually safer. 4. It enables surgeons to be much more untrammeled in the amount of bone that they can remove. 5. It prevents deformity, which especially, when beyond the hair line, is necessarily great in large bone removals.

Traumatic Synovitis of the Knee Joint.

DR. EDWARD A. BALLOCH, Washington, D. C., cited illustrative cases showing the advantages of early operative intervention, after which he drew the following conclusions: 1. In most, if not all, cases of traumatic arthritis of the knee there is an injury to some of the structures of the joint. 2. Conservative measures should not be persisted in too long. Three weeks was proposed as a fair length of time for a trial of these measures. If no improvement is manifest at the end of that time, the propriety of operative intervention should be considered. 3. Arthrotomy, properly performed, is not an essentially dangerous procedure and may do great good. 4. Early operative intervention will give a greater proportion of useful joints in a shorter space of time than will any other method.

Cases in Which Early Diagnosis of Cancer of the Uterus Was Made.

DR. RUFUS B. HALL, Cincinnati, said that of the many cases of cancer of the body of the uterus coming under his observation only two cases, which he reported in his paper, were seen early enough to make a diagnosis while the disease was limited to a very small area. Adenocarcinoma was found to be the variety of the disease in each case. He believes that the disease can be diagnosed in its incipiency if surgeons systematically curette every suspicious case and make repeated microscopic examinations of the scrapings removed from the uterus until they confirm or disprove the presence of malignant disease.

A Contribution to the Origin of Adenomyoma of the Uterus.

DR. J. WHITRIDGE WILLIAMS, Baltimore, after calling attention to the anatomic appearance of adenomyomata of the uterus, and to the various theories which have been advanced according to the origin of the epithelial structures contained in them, described a uterus removed at autopsy from a woman who died just after delivery as the result of hemorrhage from placenta previa. At the time of its removal the uterus apparently presented the characteristic appearance of the organ immediately following delivery, except that the area of placental attachment covered two-thirds of its interior, instead of being more circumscribed and limited to the anterior or posterior wall, thus indicating in all probability that interference with its blood supply had led to a much more extensive implantation of the placenta than usual.

On making a sagittal section through the uterus after hardening, numerous irregularly shaped, more or less oval areas, of a dull white appearance, and varying from a millimeter in diameter to structures 5 by 10 mm. in their various dimensions, could be seen throughout the entire thickness of the uterine walls, which measured 3 cm. in their thickest parts. These areas were most abundant immediately beneath the endometrium, but could be traced outward through the entire thickness of the uterine wall to its peritoneal covering. On microscopic examination they were found to consist of typical decidual tissue, which was made up of the characteristic decidual cells and glandular spaces lined by cuboidal epithelium. Dr. Williams stated that, so far as he could ascertain, this is the first case in which such a distribution of decidual tissue has been ob-

served, and then discussed the importance of such an observation in contributing toward determining the derivation of the epithelial structures contained in adenomyomata. He referred briefly to the literature on the histogenesis of adenomyomata and pointed out that while the vast majority of such growths are clearly derived from Muellerian tissue, conclusive evidence against the Wolffian body origin of certain cases has not yet been and probably never can be adduced.

Development of Fibroids of the Uterus After Ablation of the Appendages.

DR. J. WESLEY BOVÉE, Washington, D. C., stated that the large number of published cases of fibroid tumors that have undergone malignant degeneration, or that have broken down, become infected, or undergone other changes in structure detrimental to the lives of their unfortunate possessors, have swept away the old ideas as to their benignancy, and that pathologists are now searching for a distinct borderline between benign and malignant soft uterine myomata. Recurrent myomata, while not so dangerous as cancer, must be considered malignant. Between these and sarcomata there is not always a distinct difference. Dr. Bovée cited five cases, and of these two were operated on for non-infectious disease, two were victims of infection and in one a condition requiring the removal of the appendages was not known.

In considering the changes in the uterus after ablation of the appendages, Dr. Bovée quoted the experimental work on lower animals of Hunter Robb and others, and said that from these experiments and investigations one can find but one theory on which to base a cause for the development of fibroids after double salpingo-oöphorectomy. This is the endarteritis obliterans noted by Benckeiser.

The Effect of Suspension of the Uterus on Pregnancy and Labor.

DR. JOSEPH TABER JOHNSON, Washington, D. C., contended that very few, if any, such injurious effects need be feared as have been frequently charged against this operation. In over 100 suspensions done by himself he only knows of two pregnancies. These were both normal. In one case the labor was so rapid that the child was born before the physician's arrival, and he knows from recent examinations that there has been no return of the retroversion. The other case he delivered in November last after a five hours' normal labor, without chloroform or forceps.

Typhoid Fever and Appendicitis.

DR. JOHN C. OLIVER, Cincinnati, draws the following conclusions: 1. That typhoid ulcers may appear in the glandular structures of the appendix and give rise to a typhoid appendicitis. 2. That the infiltration of the ileum and cecum in typhoid fever may be so great as to give rise to a distinct tumor mass in the right iliac fossa. 3. That the Widal test is of but little, if any, value in the early diagnosis of the disease present. 4. That the leucocyte count proved in his series of cases to be of value in distinguishing between the two diseases. 5. That an exploratory laparotomy in typhoid fever is not devoid of danger. 6. That abdominal incision is imperative when it becomes necessary to establish the differential diagnosis between a typhoid perforation and fulminant appendicitis. 7. That in the absence of perforation cases of typhoid appendicitis should not be operated on.

Gynecologic Problems.

DR. P. F. CHAMBERS, New York City, read a paper in which he pointed out the problems presented to the gynecologist twenty-five years ago and to-day.

The Management of Acute General Peritonitis.

DR. J. GARLAND SHERRILL, Louisville, Ky., considered two forms of infection: First, acute septic peritonitis; second, general suppurative peritonitis. The various methods of medical treatment were considered, and the position taken that these cases are surgical, except where operation is refused and the patient's condition will not permit of surgical interference.

In considering the surgical treatment he placed much stress on early operation for the prevention of general peritonitis while the process is yet localized. The outcome of a given case will depend on the following factors: 1, the virulence of the infection; 2, the quantity of the infecting medium; 3, the resistance of the patient; 4, the activity of the organs of elimination; 5, the time at which the patient comes to operation; 6, the rapidity and thoroughness of the surgical procedure.

Dr. Sherrill considers that the special technic of the operation is of less importance than the dexterity of the surgeon and the care with which he does his work. He finds that by flushing he can best free the peritoneum of infectious material, and usually drains. The patient should have the usual treatment given all abdominal cases.

Some Further Advances in Renal Surgery.

DR. JOHN B. MURPHY, Chicago, made a forcible plea for more conservative surgical work on the kidneys and ureters in the future, saying that surgeons must consider the importance of preserving any portion of a kidney that is still in a condition to functionate, on account of the enormous mortality associated with the removal of this organ. The mortality in the past following the removal of a kidney that was secreting practically the normal amount of urine varied from 29 to 35 per cent. He reported six cases of operations on the kidney. In all of them the enlargement of the pelvis of the kidney was almost equivalent to, and in many instances larger than, the kidney itself. In cases of great dilatation of the pelvis of the kidney it was his custom to remove the kidney until he realized that it was practically a normally secreting organ and that the dilatation of the pelvis is due to ureteral obstruction, and that there is no good reason for taking out a kidney when the sac is removed, regardless of the position of attachment of the ureter to the sac, as this varies in every case. He believes in connection with surgery of the kidney that surgeons are approaching a time when they will examine the kidney carefully and cautiously and then decide, as in certain lesions of the stomach, that this or that portion shall be removed and the remaining part husbanded.

Vesical Diverticula Requiring Operation.

DR. HUGH H. YOUNG, Baltimore, stated that a patient died after obscure bladder symptoms, and autopsy showed seven diverticula, the largest about five inches in diameter, communicating with the bladder by small orifices. Both ureters were compressed by the diverticula, and hydroureter and hydropelvis resulted. The patient died of uremia. Since then he has had four cases of vesical diverticula where operation was advisable, and was performed with success in each case. In two cases the diverticula were larger than an orange, in the others smaller.

His four patients are all living and in good condition. In three cases the diverticula were completely excised, but ureteral transplantation was avoided by a plastic method. Renal infection was avoided and no fistulæ resulted.

The Ultimate Results Obtained by Conservative Perineal Prostatectomy in Seventy-Five Cases.

DR. YOUNG also read this paper. In this series there were 5 cases over 80 years of age, one 87 years of age, with one death five weeks after the operation in a man aged 84. Two other deaths, neither attributable to the operation, occurred, each in the third week, one, in a patient walking about and ready to go home, from pulmonary thrombosis, and the other in a man 77 years of age who had been uremic for several weeks, and autopsy showed double pyo-hydro-nephrosis. The harmlessness of the operation was thus shown.

When Shall We Resect in Tuberculous Disease of the Joints?

DR. C. H. CALDWELL, Cincinnati, in a paper on this subject, stated that his judgment as to the advisability of resection in a given case of tuberculous joint disease would be influenced by many considerations. A single tuberculous focus in the epiphysis of a long bone, which is susceptible of complete immobilization, stands a much better chance of undergoing reparative change than will such a focus in the spongy bones of the wrist,

in the close proximity of synovial and ligamentous structures which favor dissemination and persistence of the disease. The conservative treatment of joints was discussed at considerable length and was divided into three classes—ideal, satisfactory and unsatisfactory.

The results from the resection of the hip are of necessity unsatisfactory when complete, as with ablation of the head and neck of the femur, one leaves no *point d'appui* for the femur, and there must be a greater or less amount of give to it under the weight of the body. In tuberculosis of the knee one is confronted with an entirely different problem. There is but little use of wasting time with a knee joint in which marked osseous changes are already present, and which, in spite of conservative treatment over a period of six months, has shown no improvement. Resection of the knee in cases which have passed the period of adolescence has much to recommend it and but little can be said against it. In those cases long delay often means amputation. As to resection in elbow cases, one is again confronted with the fact that results are at the best far from what one may desire. In the wrist and carpal joints excision depends on individual judgment. Ankle joint and tarsal excisions are, as a rule, very unsatisfactory. The deficiency in weight-bearing capacity renders the result far from gratifying and amputation is, so far as his observation goes, too frequent a sequel to these operations. Several skiagrams were exhibited illustrating tuberculous joints and the results of resections.

Obliteration of the Stomach by Caustic.

DR. SAMUEL J. MIXTER, Boston, stated that doubtless other surgeons have seen cases of constriction of the esophagus after the ingestion of acid or of strong alkalies, and also cases of constriction of the pylorus from the same cause. It is very rare, however, to find practically the whole stomach destroyed. He reported three cases in which the stomach was almost entirely obliterated by caustics.

Vaginal Cesarean Section.

DR. C. JEFF MILLER, New Orleans, reported a case and summed up the advantages of the method as follows: 1. In severe eclampsia, when the woman is unconscious between the convulsions, the cervix rigid and elongated, and delivery imperative, it is always preferable to abdominal section, and, under proper surroundings, may be preferable to metal dilators for manual dilatation. 2. In severe cases of accidental hemorrhage, when the cervix is closed, it is safer than the other method of accouchement forcé, owing to the rapidity with which the uterus can be emptied, and should be given preference over abdominal hysterectomy, which is generally advised. 3. It may be considered in other conditions where cesarean section is indicated, except in contracted pelvis or dystocia, arising from maternal or fetal disproportion. It has not the disadvantages of an abdominal operation in that the peritoneum need not be opened unless hysterectomy is to be preferred for malignancy, and there is less shock than follows abdominal operation. 4. It is not more dangerous than attempting to deliver either by version or by forceps, when the os is not fully dilated, if done under strict aseptic precautions.

Dermoid Cysts and Fistulae of the Sacrococcygeal Region.

DR. LEWIS C. BOSHER, Richmond, Va., has operated on seven cases of dermoid cysts for fistulæ of the sacrococcygeal region. After referring to the diagnosis and prognosis, he says that the usual methods resorted to for treating inflammatory fistulous tracts will seldom result in permanent cure. Complete extirpation of the fistula and sac must be performed to prevent a recurrence. It is to be noted that this is not always possible, as in a case reported in the literature by Wette, where complete extirpation would have involved opening the spinal canal, with serious injury to the nerves.

Hematoma of the Ovary.

DR. MAGNUS A. TATE, Cincinnati, presented a study of the cases which he had collected from the literature. These cases showed that three periods of life markedly predominate as a predisposing factor in the causation of hematoma of the ovary: First, before or during birth; second, at or near the first menstrual flow; third, early adult or child-bearing period. The age of child-bearing women who are afflicted with hematoma of the ovaries varies from 15 to 40 years, and the left ovary seems to be more frequently affected than the right.

Pathogenesis and Surgical Treatment of Tubercular Peritonitis.

DR. WILLIAM E. STOKES, Salisbury, N. C., after dwelling on the pathogenesis of this disease, divided it into four forms—the adhesive, suppurative, tympanitic and ascitic. He quoted extensively from the literature of the subject, referred to the modes of infection, reported a series of cases occurring in his own practice, and spoke of the importance of histologic examinations.

Tracheotomy for Gunshot Wounds of the Trachea.

DR. J. MCFADDEN GASTON, Atlanta, Ga., discussed the subject of gunshot wounds of the trachea, and the complications that are likely to occur from septic infection or from laryngeal stenosis. He reported a case of gunshot wound of the trachea in a child 8 years of age. The position of the incision in the trachea was lateral rather than on the anterior surface of the windpipe. The patient made an excellent recovery.

Rupture of the Diaphragm.

DR. GEORGE S. BROWN, Birmingham, Ala., read a paper on this subject and reported an interesting and instructive case in a fireman, 27 years of age, six feet tall, whose weight was 190 pounds. The patient had hurt or strained his side slightly about two years before the rupture of the diaphragm occurred. Although an operation was performed, the case terminated fatally.

The following papers were also read: Dr. J. A. Goggans, Alexander City, Ala., "Report of Two Cases of Tumor of the Pancreas"; Dr. Herman J. Boldt, New York City, "Treatment of Uterine Bleeding"; Dr. W. H. Doughty, Augusta, Ga., "Suprapubic Prostatectomy"; Dr. W. D. Haggard, Nashville, Tenn., "Encephalo-Meningocele." Dr. Haggard also described an easy method of instituting peritoneal gauze drainage through the cul-de-sac. Dr. J. B. Murfree, Murfreesboro, Tenn., "Strangulated Hernia." Dr. E. Denegre Martin, New Orleans, reported two cases of cancer of the appendix.

Dr. Henry T. Byford's paper, "Some points in the Technic of Aseptic Operating," will appear in full in THE JOURNAL.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Regular Meeting, Nov. 3, 1904.

The President, Dr. Richard C. Norris, in the Chair.

Report of a Case of Rupture of the Trachea During Labor.

DR. CHARLES A. SERVICE reported this case. In a primipara, aged 29, after labor had proceeded in an apparently normal manner for some time, during a pain, a swelling appeared about the left side of the neck and face. On examination the subcutaneous tissue from the sterno-clavicular junction to the corner of the mouth was found to be emphysematous and painful on pressure. This condition increased with each pain. An anesthetic was administered and delivery effected as speedily as possible. The emphysema finally extended to the entire trunk and both arms, and the eyelids, especially of the left, were distended to the extent of obscuring vision. The swelling disappeared by the eleventh day, absorption being apparently favorably influenced by the application of hot alcohol several times daily.

DISCUSSION.

DR. ROLAND C. CURTIN reported a case of emphysema of the chest, neck and face during labor which later involved the whole chest except the mammary glands and in which deglutition caused pain and nausea and which was followed by an uneventful recovery.

DR. E. P. BERNARDY said that he had seen a patient's face become swollen and crepitant after a long and difficult labor, but that he had not considered this a condition of fractured trachea.

DR. RICHARD C. NORRIS reported seeing this accident twice.

DR. B. C. HIRST stated that he had seen one case of rupture of the trachea and that that was a comparatively mild one. The deformity was not great, but the crepitation was marked.

Central Rupture of the Perineum.

DR. W. H. NICHOLSON reported this case, which occurred during labor. The rupture was the size of a half-dollar and occurred just in front of the anus. He ascribed its causation to marked overflexion of the head associated with a very narrow symphyseal arch. He considered that there may have been some abnormality in the function of the levator ani which either prevented head extension or did not present enough resistance to produce it. Dr. Nicholson said that the symptoms which would lead one to suspect such an accident are great distension and thinning of the perineum, associated with posterior situations of the presenting part as a whole. He thinks that the preventive treatment should consist in section of the perineum in the median line followed by a delivery of the head by forceps or rectal finger.

DISCUSSION.

DR. ROLAND G. CURTIN reported a case similar to that of Dr. Nicholson.

DR. RICHARD A. CLEEMANN also reported a similar case. The child was born during his absence, and on examining the patient afterward he found a long jagged tear extending from the anus nearly to the fourchette. The wound was at once closed with silk sutures, but union was followed by a vaginal fistula which closed spontaneously later. Subsequent labors occasioned lacerations, but none so severe.

DR. H. P. FISHER reported a case in which he averted a tear into the rectum by incising the perineum anteriorly with scissors.

DR. DANIEL LONGAKER said that he has never seen a central perforation of the perineum, but has frequently seen, coming in advance of the head, a fold of mucous membrane which was starting to tear high up in the vagina and was advancing with the progress of the head.

DR. G. N. BOYD considers the etiology of the tear a matter of great importance. He has seen a tear commencing as a central laceration finally completing itself before the delivery of the child. He admitted the possibility of the explanation given by Dr. Nicholson of spasm of the levator ani causing this condition.

DR. E. P. BERNARDY stated that central lacerations may be due to several causes, the principal one being malposition of the head, especially posterior presentations. The second cause he regards as the well-known lack of muscular extensibility. The forceps as applied in posterior presentations may also be a cause. He reported an illustrative case.

DR. R. C. NORRIS stated that one has to theorize a good deal on the mechanism of labor in such cases, since they happen so infrequently. He considers Dr. Nicholson's explanation not wholly satisfactory. He has noticed that just before the birth of the occiput there is occasionally a sudden giving way of some obstacle to the advancing head. He believes that this release of the head is due to sudden overdistension of the pelvic floor, which allows the head to quickly pass through the vulvar ring. The practical side of the question is that at this stage of labor the obstetrician should see that the head does extend.

DR. NCHOLSON stated that the overdistension of the perineum, antedating the true central lacerations, precludes the possibility of mistaking an ordinary case for a central laceration. He thinks it is generally agreed that there should be immediate repair of the injury.

Therapeutic Value of Ergot in Labor.

DR. J. C. APPLEGATE stated that he does not regard ergot as a safe or appropriate remedy for uterine inertia. Its physiologic effects on the uterus are unlike the rhythmical labor pains in that they are less intermitting, more continuous and predisposed to cause uterine constriction, particularly of the lower segment. He thinks that the dangers attending premature administration of the drug are: Rupture of the uterus, asphyxiation of the child or paralysis of fetal heart from compression, and retention of the placenta and membranes. He believes it better to complete the dilatation manually. He considers ergot indicated as a safeguard after delayed labor, or when inertia has been a factor, after placenta previa, and after reposition of an inverted uterus.

DISCUSSION.

DR. R. C. CURTIN stated that most of the ergot he has given of late has been for other hemorrhages than those of the uterus. In cases where there is general oozing from a mucous membrane he thinks it does good.

DR. LONGAKER said that he agreed with Dr. Applegate that several of the most difficult cases of expulsion of the placenta were cases in which ergot had been given freely. He reported briefly two patients who died of postpartum hemorrhage after they were left by the physician. In neither case was ergot used. He thinks that the routine method of completely emptying the uterus and then administering ergot would prevent such calamities.

DR. W. R. NICHOLSON stated that ergot instead of increasing the chances of infection has the opposite effect and offers a means of cleansing the uterine cavity in a way not possible by any other means.

DR. APPLEGATE agreed that ergot may be of great advantage as a preventive against septic infection when there is profuse bleeding or other evidence of a relaxed condition of the uterus. On the other hand, if the uterus is normally contracted, he believes that ergot blocks the secretions and dilates the veins, thus aiding in the absorption of septic material.

Travel Notes.

XXI.

FOUR THOUSAND MILES THROUGH INDIA BY RAIL IN MIDSUMMER.

NICHOLAS SENN, M.D.
CHICAGO.

S. S. KRONPRINZ WILHELM, Oct. 11, 1904.

When I decided to make a tour around the world by way of India, during midsummer, I knew beforehand that I would have no use in that part of the world for an overcoat or blankets. I was very well aware of the fact that that part of India which I expected to see had an unenviable reputation as a summer resort. Information from different sources concerning the climate of certain countries is about as reliable as hunting and fishing stories. In order to ascertain about what I had to expect in the way of heat at that time of the year, I interviewed sea captains and people who had lived in India. The opinions expressed were so widely at variance that I remained in doubt concerning the real climatic conditions that I would have to encounter in that part of my itinerary around the world. A traveling companion from San Francisco to Auckland, a missionary, who had lived several years in the northern part of India, gave me the most discouraging account. He said that where he formerly resided the burning sun during summer heated the stones to such a degree of heat that a simple touch with the hand would result in a burn sufficiently severe to blister the skin. An officer of the Indian Medical Service gave me the consoling information that when he was on duty at Calcutta he had to spend several hours each day in a cool bath during the summer months to counteract the intensity of the heat. Sea captains were only familiar with the climate on the coasts of India; they knew nothing about the summer climate of the great plains which I expected to cross. Their opinions on the coast climate were not unanimous. They could be formulated about as follows: Very hot, hot, quite hot, not so bad as has been represented. In view of these testimonies, I approached the climate of India with a mixed feeling of hope and fear. After having crossed the equator twice on the way from

San Francisco to Ceylon, I spent five days in the hot, humid climate of Ceylon, and for the first time fixed my eyes on "India's Coral Strand" early Tuesday morning, August 30. From subsequent experience, I would suggest the following change in the second line of the famous and well-known missionary hymn:

From Greenland's icy mountains
From India's "burning" strand,

as this change would more forcibly indicate the difference in the climatic conditions of these two places which these lines are intended to convey. The first impression of India in landing at Tuticorin is very disappointing. Unlike the South Sea Islands and Ceylon, the coast is not fringed with palm trees; it is bare and barren. The country is level and vegetation very scanty. The part of India which I traversed, and the tour extended from Tuticorin to Bombay, via Madras, Calcutta, Benares, Allahabad, Agra, Delhi, Jaipur and Ahmehabad, is entirely devoid of interesting scenery. There are no forest-clad mountains, waterfalls, mountain lakes, babbling springs nor clear rivers. Most of the river beds are dry or are a succession of dirty pools, the favorite bathing and drinking places for man and beast.

The sacred Ganges at Benares is about the size of the Mississippi at St. Louis. It is the great sewer for millions of people; its dirty water is credited with great healing power by the superstitious population and is carried in earthen or brass vessels, or pigskins, great distances for drinking purposes, as it is supposed to possess virtues which will prevent and cure all kinds of diseases. When we realize that the river is used as a receptacle for corpses, dead animals and everything that is filthy, it is difficult to comprehend how Mark Twain could come to the conclusion that its water is the purest in the world and sing its praises. This great traveler has immortalized himself with the natives of India by lauding the purity of the Ganges water. He may be right from a bacteriologic standpoint, and his position would be upheld by the Chicago Department of Health, but would meet with violent opposition by the guardians of health of the city of St. Louis.

When I saw this sacred stream its water was about the color of pea soup, and during a boat ride along its shores I saw a number of decomposed, bloated dead dogs floating on the surface of the sluggish stream, and at the place where the corpses of human beings are cremated baskets of ashes were consigned to its sacred water. The soul of the Hindu finds no rest until at least a part of the incinerated remains are deposited in this river. From the ashes of the cremated bodies a few fragments of bone are taken, tied up in a cloth and sooner or later this ghastly bundle must be thrown into the Ganges, even if this part of the funeral rites requires days and weeks and no inconsiderable expense incidental to the travel. It is fortunate that this river is inhabited by crocodiles, which can dispose, at least, of some of the bodies and carcasses which are thrown into it by the hundreds and thousands every day. In the inhabited parts of the country through which the Ganges passes, its shores are lined with washerwomen and washermen and human and animal bathers. The amount of human excreta which find their way into this stream is simply enormous, and other sources of pollution are innumerable; hence, if nature's laboratory can cope successfully with so many sources of contamination and render the water, if not clean, yet potable and bacteriologically pure, she has done what sanitarians so far have failed to accomplish.

I have said that the part of India included in my tour lacks scenic beauty. It is monotonous, a great, level, limitless plains, covered by rice marshes on the west coast; deserts, pastures, grain and cornfields in the interior and along the Indian Ocean coast; very little fruit culture anywhere. Between Madras and Calcutta, and in the vicinity of Jaipur, the monotony of the landscape is somewhat relieved by mountain ranges, which are, however, almost bare, dotted only here and there with clumps of shrubs and dwarfed, hardy, much-branched trees.

Water is India's greatest concern. On the amount of rainfall depends the success or failure of the crops.

> "All the results of agriculture are dependent not so much on reason and diligence, as on those most uncertain things, winds and weather."—Cicero.

Deforestation has impoverished India, as it has the Holy Land, Greece, Turkey, Spain, southern Austria, and parts of the United States. The building of reservoirs and dams to hold heaven's gift have succeeded only in part to prevent drouths when the rainfall is scanty. The government has at last recognized the true cause of the frequent drouths, and in 1880 passed laws prohibiting further forest destruction, and took active steps to restore what has been lost by the reckless, thoughtless, destructive work of man. The results of the efforts of reforestation are apparent in many parts of the country, and if this good work is carried on with the deserved energy, India will get its good share of rain in less than a hundred years; the farmer will reap, from year to year, the rewards of labor, famine will disappear and the general prosperity of the country will reach a degree never known before. Nature has made provision for reforestation of arid regions. In the desert of Sahara, along the banks of the Suez Canal, I noticed a shrub from 4 to 8 feet high, with a dark green foliage—the *Tamarix tetragyna*—in places where nothing else would grow. This shrub is preeminently fit for dry saline soil. The leaves are eaten by cattle. This shrub would flourish in the deserts of our western states.

At present the laboring classes spend much of their time and labor in holding and distributing the limited water supply. In some districts the government has established well-planned systems of irrigation, which have brought millions of acres of arid land under successful cultivation. Beyond these areas, the farmer, during the dry season, spends most of his energies in supplying the arid soil with moisture by the most primitive methods. From pools, tanks and wells, water is drawn in pails by hand, foot or bullock power, in the same way as was done a thousand years and more ago. I never saw a windmill in India. The water is poured into little gutters, which intersect the fields in different directions. Men, women and children are engaged in this kind of work. The women supply the household with water and, as the wells are frequently far apart, this task is often not an easy one. Hard as this work may be, it has its fascination for the women. They congregate at the well, chatter and laugh while the earthen or brass vessels are being filled, and, when perched on their well-balanced heads, return in files to their village, keeping up their lively conversation until the one from the greatest distance finds herself alone. The erect, graceful stature of the laboring native women is largely due to this enforced useful gymnastic exercise.

A common way of dipping water from a tank or pool into an irrigating ditch is by means of a large waterproof basket made of palm leaves, to which is attached a piece of rope on opposite sides. Two persons swing this basket so regularly and skillfully that it catches the water on one side and discharges it on the other. To maintain the proper tempo of these swinging movements between the two persons so employed, a monotonous chant regulates the muscular movements. Pumps appear to be unknown. When bullocks take the place of man power, the water is drawn from the well in an immense bucket, the traction rope running in the groove of a wheel about two feet in diameter. The bucket is swung in the desired direction by a man and emptied. The bullock's work is not so easy as it might seem. The run is a short one and the animal is not a very lithe one, and the constant turning movements must be much more fatiguing than the traction in a straight direction over such a short distance.

The elevation of water from a well by a beam, kept in motion by up-and-down movements by the to-and-fro walking on it of one or more boys, can not be regarded in the light of a childish play. The actors must be sure-footed in walking back and forth on the polished beam, and when the exercise

is kept up for hours the muscles of the legs and back have certainly undergone a great strain, and when this work is done under the burning rays of the sun, it means a bodily exertion which would exhaust the strength of our best athletes in a surprisingly short time.

ATTRACTIONS OF INDIA.

I did not go to India with the expectation of seeing enchanting scenes, hence I was not disappointed at their absence. I had seen most of the finest scenery in the world, including Alaska, Yellowstone Park, Yosemite Valley, Switzerland, Norway, Tyrol, Siberia, West Indies, Central America, Tahiti, etc., and I came to India to see what is generally recognized as the most interesting country in the world. I came to India to see her people, temples, palaces, tombs, her works of ancient art, her trees, flowers and animals. Having seen as much as possible of these things during the short space of eighteen days, traveling at the same time more than 4,000 miles by rail and during the worst season of the year, I feel fully compensated for the risks incurred and the sufferings endured, and can only repeat what has so often been said, that the real traveler, not the sightseer, will find here more that will interest him than in any other country in the world.

Take away from the Holy Land sacred history and its remaining landmarks, and it could furnish no such attractions as can India, the land of ancient history, civilization, art and science. The tombs and pyramids of Egypt are modern when compared with the ancient temple ruins in India. The history of Rome is as of to-day when contrasted with the records of India, punctured indelibly in characters on the palm leaves used as writing material for thousands of years, and carefully preserved in the temples, which are practically fireproof, and many of them never touched by the rude hand of war and plunder. The ancient history of Egypt must be studied, not in Egypt but in the British Museum, while to become familiar with the earliest history of India, it must be studied in India itself. India has landmarks in history that can not be transported like Cleopatra's needle, landmarks that would be ruined and made valueless if they were taken from the places where they were built thousands of years ago. People from all parts of the world may be seen at a world's fair exhibition, but it is impossible to know them or to learn their habits and customs, their vices and virtues until they are seen at their houses, at their places of business, on their farms, at their public amusements, in their own environments. A native in a distant strange land on exhibition is no more of a native than is a lion in a cage to be compared with a lion in the deserts of Nubia.

And, after all

> "The greatest study of mankind is man."—
> Pope.

The average tourist wants to see beautiful scenery, to walk picture galleries, to attend operas and concerts, to get a glimpse of and, if it is at all possible, to come in touch with royalty or with persons of high positions and social influence. The true traveler, on the other hand, spends much of his time among the mass of the common people, the backbone of every nation. He is anxious to learn from his own observations what they do and how they live. He sees them work in the fields and he visits them in their huts. He visits the markets to learn what the country produces, and he ascertains the prices of foodstuffs. He studies the habits and customs of the people, their clothing, their implements of agriculture and war and the tools of the artisans. He looks into the little shops and finds out what the people buy and sell. He makes a study of the trees, flowers and animals, domestic and wild. He frequents the botanic and zoologic gardens and museums. He takes special interest in the landmarks of history, ancient and modern, and the educational advantages and religious beliefs of the natives of the country he visits. With such objects in view, there is no country in the world that offers a wider field and a richer material than India.

MY SERVANT, LAZARUS.

As I have indicated before, travel out of season in a tropic country offers advantages as well as disadvantages. Crowding on shipboard, in railway carriages and in hotels is avoided. There were only twenty first-class passengers on the voyage from Adelaide to Colombo, four from Colombo to Tuticorin and less than fifty from Bombay to Marseilles. At Madras, besides myself, there was only one guest in the Connemara Hotel; at Calcutta, in the Great Western Hotel, not more than ten; at Benares I had the Hotel de Paris to myself, so at Agra the Metropole, and at Delhi the Laurie Hotel, and at Jaipur, in the Rastum Family Hotel, besides myself, there was the Parsee woman doctor who will be referred to again further on. At Bombay, the magnificent hotel Taj Mahal, with 600 rooms, had less than sixty guests at the time of my visit. The Indian railways provide well for the first-class passengers. The first-class compartments have six sitting and four lying-down places, lavatory and a connecting small compartment for servants. Towels and bedding are carried by the passengers. During the six nights I spent on the train I shared such a convenient compartment only once with a fellow traveler, and during the day I was very seldom disturbed by additional passengers. I was never obliged to check my trunk, which was always brought into my compartment. All trains carry ice and soda; the former is sold at 4 cents a pound and the latter at current prices. The trains make a stop of from 25 to 30 minutes at the eating stations at the usual meal hours observed in India.

In undertaking the trip through India at such an unseasonable time, I felt, for the first time in my life, the need of a personal attendant to relieve me of unnecessary care and physical exertion, and on its completion I had every reason to be satisfied with the step I had taken. To pack and to unpack, in a temperature ranging between 92 and 105 F. every day or two and to take care of the baggage and bring it from station to hotel and from hotel to station in such an uncongenial climate, are tasks that should be avoided by the traveler and assigned to a coolie. At Colombo I engaged Lazarus, a Ceylonese Tamil, about 26 years of age, who was to accompany me as my servant from there to Bombay The understanding was that I should pay his transportation both ways, third-class, and that he should receive a rupee and a half (48 cents) a day. The whole expense for the required time amounted to $35.66.

Lazarus was a typical Tamil, slender, lithe, coal-black, with sharp, rather intelligent eyes. He had a wife and two children and lived near Colombo. He inherited the Roman Catholic faith and whenever we visited a Catholic church he sprinkled himself with holy water and made the sign of the cross. A closer acquaintance with him, however, threw some shadows on the religious life of this member of the Roman Catholic faith. His greatest failing was in money matters. Our accounts did not always agree, but, as the amount was usually small, his bills were generally passed and paid; however, as this was a daily affair, I am satisfied that some rupees, many annas and much copper found their way into a corner of his soiled handkerchief instead of back into my pocket. I have learned by a somewhat expensive experience that a pigmented skin abhors truth and cherishes to represent things in the wrong light, and that whether yellow or black its owner, heathen or convert can seldom be depended on. I have learned to comprehend why the Devil, the father of lies, when pictured, is usually made to appear in black. Questionable as the little transactions of Lazarus may have been, his services proved invaluable and, in the end, I was the gainer so far as expense was concerned. He was a very good servant. I could not lose anything if I tried. Things that I threw aside he would pick up and repack.

Lazarus had many unpleasant functions to perform. Tipping is the curse of the traveler. This nuisance has reached greater dimensions in India than in any other country. Tipping in out-of-season travel grows as an unavoidable evil in proportion as the number of visitors is diminished. In hotels and at railway stations the number of employes far exceeded the demand, and as I was so often the only guest or first-

class passenger, all eyes and hands centered on me. I made Lazarus my agent in the distribution of tips. It was he who converted large silver coins into smaller change, silver and copper. The coolies did not like to deal with me in such an indirect way, but the rule was an inflexible one and was adhered to from the beginning to the end of the trip. It was by this method of disposing of the tip nuisance that both I and Lazarus made money. The coolie, ignorant as he may be, has learned to distinguish between silver and copper and hates the sight of the latter. To pass through India with honor in the estimation of the coolie, it is necessary to carry a liberal supply of silver coins and to see to it that not too many get a hold of your baggage, as the carrying of an umbrella or cane seems to entitle the bearer to the same financial consideration as is tendered to the one who groans under the weight of the trunk. Lazarus was a source of the greatest comfort to me. He would inform me when to prepare for the next eating station and when the time came to change cars or the approach of the station where I wished to interrupt the journey. He brought me ice and soda whenever I was tortured by thirst, which was often the case. He was master of the Tamil, Singhalese and Hindustan languages, but his knowledge of English was very limited. This was perhaps on many occasions desirable, as he was very loquacious, like all his countrymen. He would often discourse at length, but at the end I did not know in what language. Some of his pigeon English was amusing. In looking at some wild peacocks one day, he wanted to point out the bird with the brightest plumage, and did so by calling him "man peacock." His pronunciation of any of the common English words was so defective that they were absolutely unintelligible. I had held out to him from the very beginning the inducement that if his service should prove satisfactory at the end of the trip he would receive, besides his daily wages, some gold, and in this I did not disappoint him when I bid him good bye at the Bombay dock.

(To be Continued.)

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Acute Laryngeal Catarrh.

In the treatment of this affection in adults, Yeo, in *Clin. Ther.*, states that small doses of opium are advantageous in the early stages in allaying the irritation and in relieving the cough. It is of service combined as follows:

℞. Morphinæ acetatis .....gr. ii |12
Antimonii et potassii tartratis.....gr. iss |09

M. Fiant chartulæ No. xvi. Sig.: One powder every four or five hours.

Heroin is also of value in relieving the tickling cough and the soreness in the larynx combined as follows:

℞. Heroin hydrochlor. .....gr. ss |03
Terpin. hydratis .....gr. xxx 2|

M. Fiant capsulæ No. xv. Sig.: One capsule every three or four hours.

Warm alkaline drinks should also be recommended in thinning the mucus which is sometimes very tenacious and hangs about and partially obstructs the glottis, rendering it difficult to expel. For this purpose the author recommends Apollinaris water to which one or two tablespoonfuls of hot milk should be added and the entire amount drunk. This should be repeated every two or three hours. The following mixture may be substituted for this:

℞. Sodii bicarb. .....3i 4|
Sodii chloridi .....gr. xxx 2|
Spiritus chloroformi.....m. xxx 2|
Aquæ camphoræ q. s. ad.....℥vi 180|

M. Fiat mistura. Sig.: Two tablespoonfuls every two or three hours, mixed with an equal amount of hot water or milk.

Ammonium chlorid in 10-grain doses (.60) may be substituted for the sodium chlorid in the above combination.

Counter-irritation and warmth are indicatd by means of small mustard or linseed poultices over the larynx. The following liniment is recommended by the author, rubbed into the throat:

℞. Olei pini sylves.....3ii 8|
Linimenti camph. compos.....3iv 15|
Linimenti saponis q. s. ad.....℥iss 45|

M. Fiat linimentum. Sig.: Apply locally two or three times daily, followed by thorough friction.

Elimination by the bowels by means of saline aperients should be carried out. The voice should be rested and the desire to cough resisted as much as possible.

The following spray is recommended as very efficacious:

℞. Cocainæ hydrochlor. .....gr. iv |25
Potassii chloratis.....gr. lxxv 5|
Aquæ laurocerasi.....m. lxxv 5|
Essentiæ menth. pip.....m. iii |20
Aquæ q. s. ad.....℥viii 240|

M. Fiat mistura. Sig.: To be used as a spray into the larynx.

Inhalations of the tincture of benzoin are indicated, especially in the less acute cases, applied by floating half a teaspoonful of the tincture on a pint of hot water. It is allowed to stand in the patient's room or is inhaled through a funnel. In the treatment of laryngitis in children, hot sponges applied to the neck are recommended and vomiting produced where the mucus is very tenacious, by the administration of vinum ipecacuanhæ minims 30 to 60 (2.-4.) mixed with two or three teaspoonfuls of warm water. Where there is a constant irritating cough, small doses of Dover's powder are advised to relieve the cough. To promote expectoration the following combination is recommended:

℞. Sodii chloridi .....gr. xvi 1|06
Sodii bicarb. .....gr. xxiv 1|55
Syr. senegæ .....3iv 15|
Aquæ q. s. ad.....℥iv 120|

M. Fiat misturæ. Sig.: A dessertspoonful, warm, every two hours.

As an expectorant in catarrhal laryngitis in children the following is of service:

℞. Potassii iodidi.....gr. xv-xx 1-1|30
Syrupi senegæ .....3iii 12|
Aquæ q. s. ad.....℥iii 90|

M. Fiat mistura. Sig.: One dessertspoonful every two hours.

The following may be used as a spray:

℞. Cocainæ hydrochlor.....gr. iv |25
Glycerini acidi carbol.....3i 4|
Aquæ rosæ q. s. ad.....℥iv 120|

M. Sig.: To be used as a gargle three or four times a day or sprayed directly into the larynx.

[Glycerin acidi carbolici contains 20 per cent. of carbolic acid].

Bronchopneumonia in Childhood.

The chief indications in the treatment of bronchopneumonia, according to Stanley, in *Birmingham Med. Rev.*, are to prevent the extension of the disease and to lessen the tendency to blocking the tubules. The child must be kept in bed in a properly ventilated room and placed on a light diet, as milk and barley water, or in older children boiled milk and bread. The following is recommended as an expectorant:

℞. Vini ipecacuanhæ.....m. v-x |30-.65
Spts. ammon. arom.....m. v |30
Syrupi tolutani .....m. v |30
Aquæ q. s. ad.....3ii 8|

M. Sig.: To be taken at one dose, and repeated every four hours.

In cases of medium severity with a moderate amount of consolidation a pneumonia jacket should be applied and the following prescribed:

℞ Vini ipecacuanhæ.....m. v |30
Spts. ammon. arom.
Syrupi senegæ, āā.....m. x |65
Syrupi tolutani.....m. xv 1|
Aquæ q. s. ad.....3ii 8|

M. Sig.: To be taken at one dose and repeated in four hours.

If there is no improvement within thirty-six hours one minim of creosote should be added. If the temperature is unusually high, tepid sponging is indicated and the following substituted:

℞ Liq. ammon. acetatis.....m. xv 1|
Spiritus etheris nitrosi.....m. x |65
Ammon. bromidi .....gr. v |30
Syrupi simplicis.....m. xx 1|30
Aquæ q. s. ad.....3ii 8|

M. Sig.: To be taken at one dose, and repeated every four hours.

If vomiting and diarrhea are present, the milk may be discontinued and whey or albumin water substituted. The following combination should be given if the diarrhea proves stubborn:

℞ Bismuthi salicyl.
Sodii bicarb., āā.....gr. v |30
Bismuthi subnit. .....gr. x |65
Pulv. tragacanthæ .....gr. xx 1|30
Aquæ q. s. ad.....3iii 12|

M. Sig.: At one dose, and repeat in four hours if necessary.

Two grains of Dover's powder may be added to the foregoing if necessary to check the diarrhea. During convalescence the patient should be given very nutritious food along with cod-liver oil or the hypophosphites.

Aufrecht, in Nothnagel's Encyc. of Med., recommends as the most important thing in the treatment of this disease that the patient be placed in a sunny, well-ventilated room and special attention given to the diet. Quinin tannate is recommended, given in small doses. Children up to 1 year of age should receive one and a half grains (.09) twice daily, and older children three grains (.20) twice a day. The following combination is also employed in the treatment of this form of pneumonia as in the croupous form:

℞ Quininæ tannatis
Ferri oxydati sacch., āā.....gr. iss |09

M. Fiat chart. No. i. Sig.: One such powder twice a day, increasing the dose according to age.

As to the method of lowering temperature and of increasing elimination, the author advises that a linen cloth or napkin be wrung out of cold water and wrapped around the body of the patient from the back, enveloping the entire thorax, and a dry piece of flannel placed around this compress. The child is then placed in bed and in half an hour the cloth should be changed. By this treatment the respiratory movements become deeper, the sleep is improved, the temperature lowered and the frequency of the respirations and pulse markedly diminished. These improvements are generally shown within ten or twelve hours, when this treatment may be discontinued, to be repeated when necessary, observing at the same time any symptoms of collapse which may occur from too rapid extraction of heat. It is important to change the position of the patient from time to time to prevent stasis in the posterior and dependent portions of the lungs. This author recommends baths only in cases in which there is marked dyspnea, cyanosis and stupor with high temperature. In such cases he recommends a bath at a temperature of from 88 to 90.5° F. for five or ten minutes at a time, followed by effusions of cold water on the neck and back from a moderate height. He condemns the use of emetics except in those cases in which the affection sets in abruptly inside of from twenty-four to thirty-six hours with symptoms of dyspnea and marked cyanosis. Emetics should not be administered to debilitated and poorly nourished children. When emesis is indicated the following combination is recommended:

℞ Antimon. et pot. tartratis.....gr. 1/6 |01
Pulv. ipecacuanhæ .....gr. iv |25

M. Fiat chart. No. i. Sig.: One such powder every ten to fifteen minutes until emesis is produced. The use of apomorphin should in all cases be avoided.

Expectorants are very useful in the course of the affection. For this purpose the author recommends the following:

℞ Pulv. ipecac.....gr. iss-iii |09-.20
Syrupi simplicis.....3ss 2|
Aquæ q. s. ad.....3ii 8|

M. Sig. One-half this amount at one dose, and repeat every two hours.

Attention is called to the fact, however, that some children possess an idiosyncrasy against ipecac. Even though vomiting may not occur, exhaustion may ensue and will disappear with the discontinuance of this medicine. As the most suitable sedative to the irritated mucous membrane the author employs inhalations of steam. When the child is continuously coughing day and night, leading to hoarseness and to exhaustion and sleeplessness, small doses of morphin must be used combined as follows:

℞ Morphin sulph.....gr. 1/3 |02
Aquæ destil.....3iiss 10|

M. Sig.: Five drops to a child 2 years of age, repeated two or three times daily according to indications, and increasing the succeeding doses to ten or fifteen drops (.65-1.00) if necessary, depending on the effect of the first dose.

In rachitic and cachectic individuals and in those cases subject to intestinal disturbances this treatment must be modified. More attention must be given to the diet and alcoholic stimulants added in the form of wine, according to the season.

Pertussis.

The following combinations are recommended in *Clin. Ther.* in the treatment of whooping cough:

℞ Ext. cannabis ind.....gr. i |06
Ext. belladonnæ .....gr. iii |20
Spiritus vini rectif.
Glycerini, āā .....3iss 6|
Aquæ q. s. ad.....℥iii 90|

M. Fiat mistura. Sig.: One-half to one teaspoonful at a dose, night and morning, depending on the age of the patient.

The foregoing should not be given to infants under eight months of age. Or:

℞ Ext. belladonnæ flu.....m. iv |25
Potass. bromidi .....gr. xlviii 3|20
Glycerini .....℥iii 90|
Aquæ dest. q. s. ad.....℥iv 120|

M. Fiat mistura. Sig.: Two teaspoonfuls every four hours.

Medicolegal.

Power of School Board to Require Vaccination.—The Supreme Court of North Carolina says that the sole question presented in the case of Hutchins vs. School Committee of Town of Durham was whether the following resolution was a reasonable exercise of the powers of the school committeee of the city of Durham: "Whereas, From the report and recommendation of Dr. N. M. Johnson, superintendent of health of Durham County, in the judgment of this committee, general vaccination of teachers and children attending the schools is desired and required for the public safety: Now, therefore, be it resolved, that no teacher or pupil be allowed to attend any school of the city of Durham after April 1, 1904, who does not present to the principal of such school a certificate of a physician of the city showing that such teacher or pupil has been successfully vaccinated within three years from that time, unless such person has been vaccinated within ten days preceding the date he or she presents himself or herself for such attendance, and this resolution shall be a permanent regulation of the schools." An epidemic of smallpox prevailed in the city of Durham and its suburbs last spring, not less than 1,000 persons being attacked, and the above resolution was passed as a protection to the 2,500 children in the schools of that city, the attendance

in which had fallen off 40 per cent. by reason of the fear of contagion. These facts were averred in the answer and found to be true by the judge. In the judgment of the Supreme Court, the resolution was a proper and reasonable exercise of the powers of the defendant. This, the court says, was not a question of compulsory vaccination under legislative authority, but simply whether, if a child was not vaccinated, the school board could, as a precautionary measure, exclude all such from the school, by a resolution, under the power given in the charter to "have entire and exclusive control of the public school interest and property in the town of Durham, prescribe rules and regulations . . . and do all other acts that may be just and lawful to conduct and manage the public school interests in said town." The plaintiff relied on Potts vs. Breen, 167 Ill. 67, that, in the absence of express legislative power, a resolution requiring vaccination as a prerequisite to attending schools is unreasonable, when smallpox does not exist in the community, and there is no reasonable ground to apprehend its appearance. But this court is not inclined to follow that authority. With the present rapid means of intercommunication, the court says, smallpox may make its appearance in any community at any moment without any notice given beforehand, and incalculable havoc be made, especially among the school children, which can not be remedied by a subsequent order excluding the non-vaccinated. "An ounce of prevention is worth a pound of cure." Besides, that case was not in point here, where smallpox had been epidemic, and was still threatening. The language of the resolution making it "permanent" would not prevent its repeal if on the subsidence of the danger the school board of that day should deem it proper to repeal. If the action of the board was not satisfactory to the public a new board would be elected who would rescind the resolution. The fact that it would be dangerous to vaccinate the plaintiff's daughter, owing to her physical condition, would be a defense for her to an order for general compulsory vaccination, but was no reason why she should be excepted from a resolution excluding from the school all children who had not been vaccinated. That she could not safely be vaccinated might make it preferable that she herself should run the risk of taking the smallpox, but was no reason that the children of the public school should be exposed to like risk of infection, through her, or others in like case. Though the school children were vaccinated, there were always some whose vaccination was imperfect and danger to them should not be increased by admitting those not vaccinated at all. Besides, a rule not enforced to all alike would soon cease to be a rule enforceable at all.

Construction of Practice Act and What Violates It.—The Supreme Court of Iowa says, in State vs. Heath, that certain penalties are denounced by section 2580 of the Code against those who shall practice medicine, surgery or obstetrics in that state without first having obtained and filed for record the certificate required by the chapter of which that section forms a part. Section 2579 defines who shall be deemed to be practicing medicine as follows: "Any person shall be held as practicing medicine, surgery or obstetrics, or to be a physician, within the meaning of the chapter, who shall publicly profess to be a physician, surgeon or obstetrician, and assume the duties, or who shall make a practice of prescribing or of prescribing and furnishing medicine for the sick, or who shall publicly profess to cure or heal." The manifest intention of the legislature was to divide those who shall be deemed practicing medicine into three classes: 1, all "who shall profess to be a physician, surgeon or obstetrician and assume the duties;" 2, those "who shall make a practice of prescribing or prescribing and furnishing medicine for the sick," and 3, those "who shall publicly profess to cure or heal." It is doubtless true that a mere public profession of an ability to heal would not subject any one to the penalties of the law. Such profession must be made under such circumstances as to indicate that it is made with a view of undertaking to cure the afflicted. One publicly professes, in announcing to the public generally his claim of skill in the art of healing, and is guilty, under section 2580 of the Code, if, without a certificate, and not within the statutory exceptions, this is done with the purpose of treating the maladies of patients who may engage his attention. There is some reason for not exacting proof of actual treatment in all cases. Should one profess to be a physician, and assume the duties or prescribe for the sick, little difficulty might be experienced in obtaining evidence of the fact. But suppose a charlatan, quack or other persons assumes or pretends to believe he may effect cures in an invisible manner, and undertakes to do so? Proof of his effort would be all but impossible. The statute, in order to be effective, has denounced the public profession that he will cure or heal, and this may be proven without exacting evidence that he has actually undertaken to do so. The statute, when fairly construed, does not seem capable of a broader construction. Nor does the court deem this essential in order to sustain its constitutionality. The statutes do not attempt to discriminate between different schools of medicine or systems for the cure of disease. No method of attempting to heal the sick, however occult, is prohibited. All that the law exacts is that, whatever the system, the practitioner shall be possessed of a certificate from the State Board of Medical Examiners, and shall exercise such reasonable skill and care as are usually possessed by practitioners in good standing of that system in the vicinity where they practice. This excludes no one from the profession, but requires all to attain reasonable proficiency in certain subjects essential to the appreciation of physical conditions to be affected by treatment. The object is not to make any particular mode of effecting a cure unlawful, but simply to protect the community from the evils of empiricism. Often the individual alone suffers from the want of proper attention, but in cases of contagious or infectious diseases the entire community may be endangered. In no profession, occupation or calling are the people more easily or readily imposed on. Section 2576 of the Code requires all, regardless of the particular school, to be examined in anatomy, physiology, general chemistry, pathology, surgery and obstetrics. Surely it is not unreasonable to exact for every one who proposes to undertake to prevent, cure or alleviate disease and pain some knowledge of the nature of disease, its origin, its anatomical and physiologic features, its causative relations and of the preparation and action of drugs. At any rate, the state, in order to guard the people against the effects of imposition or ignorance, had the right to exact such knowledge. The examination in materia medica, therapeutics and the principles and practice of medicine must correspond to the school according to which the applicant proposes to practice. In this case it conclusively appeared that the accused, who had never obtained a certificate from the State Board of Medical Examiners, professed publicly to heal a great variety of ailments (by "magnetic treatments"), and so did for the purpose of procuring patients and treating them. The question of his guilt should have been submitted to the jury.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.
December 24.

1 *Roentgen Rays in the Treatment of Leukemia; a Study of Reported Cases. George Dock, Ann Arbor.
2 Two Cases of Bothriocephalus Infection, One of Them Showing Profound Anemia. David L. Edsall, Philadelphia.
3 The Military Importance of Mild Typhoid Infections, Such as Mountain Fever. Charles E. Woodruff, U. S. A.
4 *The Problem of the Prevention of Measles and Whooping-cough. Charles S. Caverly, Rutland, Vt.
5 The Pitch of the Normal Pulmonary Valve Sound and the Practical Significance of Its Changes in Acute Lobar Pneumonia and in Emphysema of the Lungs. Howard S. Anders, Philadelphia.
6 *An Unusual Case of Addison's Disease. H. B. Whitney, Denver.
7 The Compression Cylinder in Skiagraphy of Calculi. Henry Hulst, Grand Rapids, Mich.

1. **Roentgen Rays in Leukemia.**—Dock says that some cases of leukemia undergo marked change for the better under treatment with the Roentgen rays. The leucocytes fall to normal and sometimes show no more pathologic cells; the red

corpuscles improve, the enlarged spleen and lymph glands resume normal proportions, the general health seems restored. In some cases the effects are imperfect. In no case has observation been carried out long enough to speak of cure. In several cases death occurred while the symptoms seemed to indicate improvement. The action of the rays probably consists in affecting the tissues that produce the pathologic leucocytes, either directly or more probably through the production or setting free of substances that affect cell formation, or degeneration, or chemotaxis, or all of these processes. Further investigation is necessary. At present the improvement must be considered functional and not affecting the original cause, nor in a permanent way the morbid histology of the disease. The improvement of the red cells may be due to general stimulation of nutrition, in which suggestion may have a part, or by diminution of lymphoid or myeloid tissue. Roentgen ray treatment of leukemia is dangerous on account of the usual risk of dermatitis and burns, but probably also on account of toxic processes as yet impossible to explain. No stronger claims can be made for it than can be made for arsenic and certain serums and bacterial toxic substances, but it may prove more certain in its action than arsenic, and it can be more readily applied in practice than the injection methods. Great care should be taken to avoid burns. Methods should be as fully described as possible in each case; the blood should be carefully examined as fully and as frequently as possible and, if possible, urine examinations should be made to throw additional light on metabolic changes.

4. **Prevention of Measles and Whooping Cough.**—Cacerly deprecates the tendency on the part of the profession and of the public to view these diseases as harmless. Although the death rate from scarlet fever has been lessened considerably by judicious preventive measures, that from measles and whooping cough remains unchanged, these diseases causing more deaths than scarlet fever. From their fatalities they are as important as scarlet fever, or diphtheria, or even smallpox. Their prevention presents peculiar difficulties. First, the indifference of the public, shared by the profession. Second, the failure of many patients to see a physician. Third, their contagiousness at a time when they can not be recognized, and fourth, the variable length of time that they remain virulent. There is not sufficient unanimity among doctors as to the necessity of preventing these diseases. They are difficult of early and certain diagnosis because their early symptoms are common to these and many other less severe and less contagious diseases. The schools offer the best opportunity for their spread. In catarrhal diseases of all kinds affecting the upper air tracts, the child should be excluded from the school. The early communicability of measles and whooping cough should never be overlooked.

6. **Unusual Case of Addison's Disease.**—The striking features of Whitney's case were an entire lack of the usual pigmentation of the skin, and a course which was extremely acute, that is, so far as the clinical manifestations are concerned, since the adrenal tuberculosis was undoubtedly chronic and of very slow development. The diagnosis was not made until at the autopsy.

Medical News, New York.

December 24.

8 The Alleged Use of Dum-dum Bullets in the Japanese-Russian War. George Ryerson Fowler, Brooklyn.
9 Renal Hematuria of Unexplained Origin. Report of a Case with Cessation after Nephrotomy. Benjamin R. Schenck, Detroit.
10 Address. Medical Society of the County of New York. Henry S. Stearns, New York.
11 Hysterectomy and the General Health. Eugene C. Savidge, New York.
12 *An Analysis of Twenty-five Cases of Strangulated Hernia Treated by Operation. George Tully Vaughan, Washington, D. C.
13 *The Significance of Pus in the Nose, with Special Reference to the Affections of the Accessary Sinuses and Their Proper Treatment. George L. Richards, Fall River, Mass.

12. **Strangulated Hernia Treated by Operation.**—Vaughan analyzes 25 cases of strangulated hernia, including only those cases in which the intestine was not only incarcerated, but the circulation of blood so obstructed as seriously to threaten and in several cases to destroy the integrity of the intestine. Five were femoral, and 20 were oblique inguinal hernias. Twenty-three were on the right side, 2 on the left. There were 2 cases of pro-peritoneal or interstitial hernia. Only one case was complicated with an undescended testicle. The youngest patient was six weeks, and the oldest 77 year old. In 8 cases the point of greatest restriction was at the external ring, in 7 cases at the internal ring, and in 1 case in the abdominal cavity (constriction not determined in 9 cases). In 19 cases the sac contained small intestine, and in every instance in which the portion could be identified—11 in number—it was found to be ileum. In 1 case, the contents were two loops of small intestine; in 1, small intestine and omentum; in 1, large and small intestine and omentum; in 1, large intestine (sigmoid flexure); and in 2, omentum only. In 11 cases, dark or turbid fluid—sometimes blood clots—were found, and in these cases strangulation had existed from 2 to 96 hours; in 8 cases over 6 hours, and in 3 cases less than 6 hours. Venous thrombosis in the mesentery, ecchymosis, or hematoma of the intestinal wall or mesentery were found in 10 cases. In 2 cases the intestinal wall was rough and bruised, and in 1 a large hematoma was found in the intestinal wall and was treated by incision, evacuation and suture. In 9 cases the contents of the sac were gangrenous, 3 of the omentum only, and 6 of the intestine, and in 4 of these there was what is usually called general peritonitis. Besides the physical signs, the two most valuable symptoms were pain and vomiting. Pain existed in all the cases, but varied in character, duration and locality. Vomiting occurred in 20 cases, nausea without vomiting in 2, and neither nausea nor vomiting in 3. In 4 cases the so-called stercoraceous vomiting occurred. In all the cases except 3, after attending to the contents of the hernial sac, some operation for radical cure was performed. Of the 3 cases mentioned, 2 were cases of peritonitis, in which it was thought best to provide for drainage, and the third did not survive the operation. The formation of an artificial anus with or without resection of the intestine must not, says Vaughan, be done in any case in which the patient's condition will permit resection with immediate reunion. In every case in which the patient's condition will permit an operation, the radical cure should be performed. There were 6 deaths in Vaughan's series. One patient was a hard drinker; one, a woman, aged 77 years, who had suffered from strangulated hernia 13 days and had an incipient general peritonitis when the gangrenous intestine was resected. She died of peritonitis 48 hours after operation. The third case was that of a patient who had been suffering with intestinal obstruction nine days and who was very weak. He died on the table, apparently from exhaustion. The fourth case was one of strangulated hernia of nine days' standing, with general peritonitis, death occurring 14 days after the operation. The fifth case was a man, aged 60 years, who had gangrene of the intestine with numerous mesenteric thrombi and beginning general peritonitis. The last case was a feeble man, aged 77 years, inmate of an insane asylum, who had had strangulation of a right oblique inguinal hernia for 8 hours, and had been treated by taxis. Death occurred on the fourth day from toxemia or exhaustion. No peritonitis. This gives a mortality of 24 per cent. Cases in which the contents of the sac were in good condition, 16; 3 deaths; mortality, 18.75 per cent. Cases in which the contents of the sac were gangrenous or general peritonitis existed at the time of operation, 9; deaths, 3; mortality, 33.3 per cent.

13. **Significance of Pus in the Nose.**—A patient presenting himself with pus coming from one or both sides of the nose, the first thing to do, says Richards, is to clear the nose of all visible sources of obstruction, especially polypi; examine the teeth, to see whether there is anything in the way of probable dental origin of sinus trouble. Then at-

tempt to ascertain whether the pus comes from the antrum or from the frontal sinus or from the ethmoidal cells. Transillumination and exploratory puncture of the antrum may be resorted to. If the antrum is free, explore the frontal sinus; try to wash out with the canula or pass a probe, if possible; if not, remove the middle turbinate. If the antrum contains pus, irrigate. If these measures fail, a radical operation must be done. The better the drainage, the faster the cure, and to accomplish this it is necessary to have a good-sized opening into the antrum. If the pus appears to come from the frontal sinus, wash out with a canula, if possible, pursuing this treatment a reasonable length of time, and being guided as to the question of a future operation somewhat by the feelings of the patient, somewhat by the annoyance of the discharge, somewhat by the chronicity of the case. It is to be remembered that the frontal sinus is a simple, large, irregular cavity, which may communicate with one or more of the anterior ethmoidal cells, and that the operation, while not of itself especially serious, may mean a more or less prolonged course of after-treatment. Where there are several empyemas, it is better to clear out the nose as thoroughly as possible, and then, under ether, do the operation on all the cavities at once.

New York Medical Journal.

December 24.

14 A Contribution to the Serum Therapy of Syphilis. Justin De Lisle, New York.
15 *The Plasmeba of Dengue; a Brief Description of the Earliest Phases of Its Plasmic Characteristics. H. A. Eberle, Greensboro, S. C.
16 *The Removal of Internal Hemorrhoids by Incision. Ernest LaPlace, Philadelphia.
17 An Attachment to Bennett's Inhaler for Pharyngeal (Crile's Method) and Tracheal Administration, and for Ethyl Chlorid-ether Sequence. Victor C. Pedersen, New York.
18 A Reply to Dr. H. H. Seabrook's Paper on What Should the General Practitioner Know of Ophthalmology? Frank D. W. Bates, Hamilton, Canada.
19 Surgical Shock. J. Shelton Horsley, Richmond, Va.
20 Report of Skin Grafting, Using Amputated Extremities as a Supply of Skin. G. Hartman and C. Welrick, Harrisburg, Pa.

15. **The Plasmeba of Dengue.**—This name has been given to a parasite found by Eberle in the blood of persons suffering from dengue. The parasite of dengue belongs to the class sporozoa, and since it is found first in the plasma of the blood, Eberle has given it the generic name plasmeba. This plasmeba, primarily found in the blood plasma, impregnates the corpuscles, producing a pale, violet tinted growth assuming various shapes as it increases in size, and in which can be noticed, after from two to four hours, faintly darker bodies, the earliest spore formations which occupy usually from two-thirds of to the entire corpuscle. On many occasions, when the spores form in the pseudopodiæ, they give the corpuscles the appearance of being crenated, but in fact they are merely projections beyond the border of the corpuscle pushing out the elastic limiting membrane of the cell. These spores mature in the course of a few hours and are characterized by a definite outline enclosing a pale protoplasm without nucleus or nucleolus. These matured spores are highly refractive and finally burst through the limiting membrane of the corpuscle and are poured out into the plasma (the greater number, however, being passive) and are ready to enter on the new cycle. The dengue plasmeba is smaller and much more active than the ameba in malarial blood. Its detection requires great patience on the part of the investigator and thorough knowledge of its morphology. The secondary changes in the corpuscles are unlike those of any of the malarial types. Crescents or flagellæ have not been noticed. There is no enlargement of the spleen or liver. The plasmeba can be found in fresh blood specimens during every day of the disease, and in the same specimens sporulation and segmentation go on continuously. Quinin has no effect in cutting short the disease, nor in lowering the temperature. Only in complicated cases would its administration be recommended, and then it should be combined with other antipyretics. The minute dengue organisms stain beautifully in weak eosin solutions and in methylene blue.

16. **Removal of Internal Hemorrhoids by Excision.**—LaPlace describes his method as follows: The patient, prepared as usual, is placed on the left side with the thighs flexed on the abdomen. The sphincter ani is dilated by stretching with both thumbs. The hemorrhoidal area is brought into view by clamping with forceps (preferably Kocher's) each hemorrhoid at its upper and lower extremity parallel with the course of the rectum. The upper forceps being held in the left hand, the hemorrhoid is cut immediately above the forceps, with curved scissors, just enough to allow the cut to be closed by the immediate insertion of a continuous suture of No. 2 cumolized plain catgut, on a medium-sized curved Hagedorn's needle. This first cut being closed, the hemorrhoid is again cut a little, and the wound is closed by the same continuous stitch, and so the procedure is repeated until the hemorrhoid is removed, when the suture is finally tied. Should any hemorrhage occur, a whipped suture is applied locally. The result is a linear cut securely sutured. The danger from hemorrhage or from sepsis is reduced to a minimum. The catgut drops away in due time. Pain is rarely present and occurs only when the sutures have been applied too deeply. The advantages of the method are precision, absence of hemorrhage during or after the operation, safety, and simplicity. LaPlace has performed it 83 times without any complication in any case. The patients are cautioned to keep the bowels locked, with a half-grain opium pill twice a day, for two days. On the sixth day an enema is given and the patient is ready, as a rule, to be discharged. No dressing is applied, except a pad externally.

Medical Record, New York.

December 24.

21 *The Antitoxin Treatment of Tertian Malarial Infections. Joseph Herbert Ford.
22 Remarks on Melancholia. Joseph Collins, New York.
23 *Report of a Case of Primary Lupus Vulgaris of the Oropharynx and Nasopharynx Treated by X-Rays. H. S. Birkett, Montreal.
24 Infant Feeding. M. J. Synnott, Montclair, N. J.
25 Paraphimosis in a Young Girl. M. I. Beeman, Newburgh, Ont.

21. **Antitoxin Treatment of Tertian Malaria.**—The antitoxin used by Ford was obtained from rabbits which were injected with the blood of patients suffering from malaria, or infected mosquitoes were allowed to bite them. The material injected was either the fluid serum or defibrinated serum, or serum, or corpuscles desiccated at a temperature below 53 degrees C. Of 9 patients treated, 2 were apparently unaffected; in 1 there was a temporary disappearance of symptoms, in 1 an abscess developed at the site of injection. Four patients recovered. The fever and parasites disappeared in the fifth case, but the course of the disease so much resembled a case of spontaneous cure that Ford regards it as inconclusive, in spite of the severity of the infection and the promptness with which the parasites disappeared from the blood after the injection of the serum.

23. **X-Rays in Primary Lupus of Oropharynx.**—Birkett's patient, a boy, aged 15, with a family history of tuberculosis, had two distinct growths in the oropharynx, each situated on the lateral and partly on the posterior walls of the pharynx. The growths were distinctly nodular in appearance, about the size of a swollen sago-grain, quite separate and distinct in the central portion, but merging into one another at the periphery; pale pink in the center, darker toward the periphery. The structures anterior to the growth were not involved. The uvula on its palatal surface seemed normal. The infiltrations extended upward to the cushion of each Eustachian tube, and from there towards the center of the nasopharynx along its root. There was no extension into the posterior nares. The pharyngeal aspect of the uvula showed two nodules, each about the size of a lentil. Under ether, by means of cutting forceps, Birkett removed the greater portion of the masses involving the lateral walls of the oropharynx. The microscope showed tubercle bacilli in typical tubercular tissue. Animal inoculation was positive. The local treatment carried out subsequent to the

removal of the masses consisted of curetting the infiltrated areas and subsequently rubbing in a mixture of lactic acid and glycerin. This treatment proving ineffectual, the galvanocautery was tried, and finally, the Roentgen ray. The patient was treated with a regulating tube with a vacuum equal to a three-inch spark-gap, which was supplied from an eighteen-inch coil, operated by an electrolytic interrupter. The tube was placed ten inches from the patient and ten-minute exposures were made for ten treatments. On account of inflammation, treatment was suspended for three weeks. Daily treatments were then given for 23 days, the face being protected by a piece of wood painted with 11 coats of white lead on each side. A recurrence was treated in the same manner and the results at the present time are most satisfactory.

Boston Medical and Surgical Journal.

December 22.

26 Two Cases of Chronic Pemphigus of the Mouth. John W. Farlow, Boston.
27 Leprosy. Theobald Smith, Boston.
28 *Chronic Gastric Ulcers. Hour-glass Deformity of the Stomach. Report of a Case Successfully Operated on. Charles L. Scudder, Boston.
29 *The Decrease in the Death-rate of Consumption. Lester C. Leonard, Worcester, Mass.
30 Pulmonary Congestion as a Cause of Sudden Death. W. W. Miner, Ware, Mass.

28. Hour-Glass Deformity of Stomach.—Scudder's patient, a woman, aged 38, suffered from influenza 10 years ago, and since that time she has had more or less trouble with her stomach, complaining of dyspepsia and indigestion. She was unable to keep anything on her stomach and was nourished by nutrient enemas. On percussion the lesser curvature of the stomach was found two inches above the umbilicus and the greater curvature three inches below. An operation was undertaken because of the persistent vomiting, and the evident obstruction. On opening the abdomen, an hour-glass deformity of the stomach was found. The obstructing portions were evidently cicatrices of old and recent ulcers. A gastrogastrostomy and a gastroduodenostomy were done. Both of these operations were facilitated by the use of rubber-covered clamps, which prevented hemorrhage and the escape of stomach or intestinal contents. The patient made an uninterrupted recovery, being able to take with relish whatever food was given her.

29. Decrease in Consumption Death Rate.—Miller has reviewed such literature on the subject of tuberculosis as deals with the work done for its extinction. Treatment of any kind not directed toward the decrease or prevention of the disease he did not study. He says that statistics of tuberculosis show conclusively a marked decrease in the death-rate during the last 20 years. For the countries whose statistics were available, he believes that it is not too much to expect that the disease will die out in this century. The most careful investigators are agreed that tuberculosis is directly communicable from one person to another. They consider the dried sputum a source of danger, but the spray from a coughing, sneezing patient in the last stages of consumption they consider a much greater source of danger. They consider a hospital for the consumptive poor, when in the last stage, to be a necessity for the effective prevention of the spread of the disease. With proper precautions the danger of infection from a consumptive may be reduced to almost nothing.

Lancet-Clinic, Cincinnati.

December 24.

31 Streptococcus and Other General Infections of Intestinal Origin, with Report of Fatal Cases. G. W. McCaskey, Fort Wayne, Ind.
32 Chorio-epithelioma Malignum. Wm. H. Taylor, Cincinnati.
33 Quinsy; Its Causation and Cure. John F. Barnhill, Indianapolis.
34 The Widal Reaction. Albert Faller, Cincinnati.

Annals of Surgery, Philadelphia.

December.

35 *The Morphology of Carcinoma and the Parasitic Theory of Its Etiology. Johannes Orth, Berlin.
36 The Present Position of the Surgery of the Hypertrophied Prostate. J. William White, Philadelphia.
37 Intussusception of Meckel's Diverticulum. W. Watson Cheyne, London.
38 *The Operative Treatment of Cancer of the Breast, with an Analysis of a Series of 100 Consecutive Cases. J. Collins Warren, Boston.
39 Modern Bullet Wounds. Frank W. Foxworthy, Indianapolis.
40 *Some Experiments with a New Method of Closing Wounds of the Larger Arteries. George Emerson Brewer, New York.
41 Birth-fracture of the Skull. Family of Three, Illustrating the Effects of Operative Treatment. James H. Nicoll, Glasgow.
42 Divulsion in Esophageal Stricture by Means of a New Instrument. Roberto Alessandri, Rome.
43 *Parotitis Following Injury or Disease of the Abdominal and Pelvic Viscera. Brennan Dyball, Exeter, England.
44 *Duodenal Ulcer; a Clinical Review of 58 Cases Operated On, with Some Remarks on Gastrojejunostomy. William J. Mayo, Rochester, Minn.
45 Tetany and Foreign Bodies in the Stomach. Tetany Caused by a Mass in the Stomach, Composed of 40 Metallic Articles, Weighing One Pound; Gastrotomy; Cured. James P. Warbasse, New York.
46 Intra-abdominal Torsion of the Entire Great Omentum. Charles L. Scudder, Boston.
47 Hernia of the Bladder Complicating Inguinal Hernia. Francis J. Shepherd, Montreal.
48 Dermoid Cyst of the Pelvic Connective Tissue. Two Cases, with a Consideration of 24 Reported Cases. Harry H. Germain, Boston.
49 The Iliac Extraperitoneal Operation for Stone in the Lower Ureter in the Male. Harry Atwood Fowler, Washington, D. C.
50 *Undescended Testicle. Based on a Study of 77 Cases. Walter B. Odlorne and Channing C. Simmons, Boston.
51 I. Hypernephroma of Kidney. II. Fibro-adenoma of Inner Wall of Ileum. Francis S. Watson, Boston.

35. Etiology of Carcinoma.—Orth says that it is a matter of no consequence etiologically in proving the transplantability of cancer, to produce a secondary cancer even on another individual, but it is of consequence to produce a primary tumor. As long as that is not successfully accomplished, and that by means of an organism in pure culture, so long is also the parasitic nature of cancer not proved.

38. Operative Treatment of Mammary Cancer.—Warren has collected a series of 100 consecutive cases of mammary cancer taken from his hospital and private practice, in which at least three years had elapsed from the time of operation. These cases have all stood the test of careful microscopic examination, and their subsequent history has been followed up carefully, thus enabling him to give end results bearing on all important points. These cases represent the average, such as the surgeon would consent to operate on with hope of benefit, if not of cure, to the patient. The results illustrate what may be accomplished under the usual conditions of surgical practice. Recognizing the importance of early surgical interference, Warren makes it a practice in all cases of tumor of the breast, in which there is uncertainty as to the nature of the growth, to explore the gland through the so-called Thomas incision, and thus arrive at the earliest possible diagnosis. In five cases it was evident that cancer had developed as a secondary process in either a cyst wall or in that chronic inflammatory condition of the gland tissue which is the accompaniment of cystic degeneration. All but one of these cases are reported as cures. In another case cancer was found growing in a small fibroma which had existed for over twenty years. Warren considers this strong testimony in favor of early operation of non-malignant tumors of the breast. In six cases there was a history of abscess; in 16 some kind of blow; in 18 cases there was a family history of cancer. The disease was most commonly observed in the sixth decade of life, 36 cases occurring between 50 and 60, 14 cases between 30 and 40, 28 cases between 40 and 50; 15 cases between 60 and 70, 5 cases between 70 and 80. The average age of those cured by operation was 52.9 years; the youngest was 31 years old, and the oldest 73. A pathologist was present at each operation and a provisional diagnosis made by the microscope at the time, also of the condition of the lymph glands removed, the dissection being continued until the last gland removed was reported not infected. Of the 100 cases 26 can be regarded as cured, that is, the patients are either alive (free from recurrence) or have died from other causes three years or more after operation. Seven of the 26 cases died, the cause and time of death being as follows: Apoplexy, 10 years after operation; cholera, 6 years; pulmonary hemorrhage, 14 years; grippe, 13 years; pneumonia, 10 years; apoplexy, 8 years, and pneumonia, 4 years after operation. Of the remaining 19 cases one each is alive at 20, 19, 18, 14, 11, 10, 4 and 3 years after operation;

two each 10 and 8 years, three 7 years, and five 5 years after operation. The percentage of cures in each variety of cancer is as follows: Colloid, 2 cases; cured, 2; 100 per cent. Cancer, 26 cases; cured, 6; 23 per cent. Scirrhus, 28 cases; cured, 12; 42 per cent. Medullary, 40 cases; cured, 3; 7 per cent. Paget's disease, 1 case; cured, 1; 100 per cent. Adenocarcinoma, 3 cases; cured, 2; 66 per cent. Warren divides the clinical course of his cases into stages. The first stage includes all cases in which the disease still remains practically in the condition in which it was when first discovered by the patient. The second stage marks the beginning of the period of visible activity in the growth. In the third stage are included all cases which have advanced beyond the immediate neighborhood of the primary focus, and have involved adjacent regions, either by direct extension or by metastases. The summary of cases made on this basis is as follows: First stage, 45 cases; cured, 19; 42 per cent. Second stage, 35 cases; cured, 6; 17 per cent. Third stage, 18 cases; cured, 1; 5 per cent. In 2 cases death resulted from the operation, and, therefore, these are not included in this list. Of 23 cases in which the skin was adherent to the growth, 6 died within a year after operaton, 5 within two years, 1 within three years, 1 five and a half years after operation. Two recurrences, four years after operation, are alive and well, and there are four cures, 13, 10, 6 and 4 years after operation. Adhesion of the skin diminishes the chances of cure by one-third. In 72 cases enlarged glands were felt in the axilla, no axillary involvement in 17, no record in 11. Of the 17 cases 11 are cures, 64 per cent. Among the 26 recorded cures 12 cases had enlarged axillary veins, no glands in 11, no record in 3. Of the 72 cases in which enlarged glands were present there were 8 in which glands were also felt above the clavicle. One of these cases died at the operation. Six that died with recurrence had lived on an average, 1.8 months after operation. One is living with recent recurrence 8 years after operation. In 61 cases in which death occurred from recurrence, the average duration of life after operation was 2 years and 1 month. In 52 cases recurrence took place on an average 1 year and 10 months after operation. Of the 61 cases 12, or 19 per cent., died after the three-year limit. After a period of 5 years the percentage is as low as 8, and it is not until 9 years have elapsed that no deaths occurred. Of 9 living cases in which there is a history of recurrence, 2 that are cured have gone respectively 16 and 10 years since the last operation. In 14 cases the disease had advanced so far that a radical cure could not be expected, yet one lived 2 years, three lived 3 years and one died 8 years after operation. The situation of the disease was as follows: Upper outer quadrant, 17; center of breast, 12; upper hemisphere, 10; lower outer quadrant, 8; upper inner quadrant, 7; whole breast, 7; outer hemisphere, 7; lower hemisphere, 3; lower inner quadrant, 1; inner hemisphere, 1; axillary border, 1. The average duration of the disease in the 100 cases was 11.8 months before treatment, but the average duration in the 26 cured cases was 12.3 months. Retraction of the nipple was recorded in 22 cases. The operation performed in the first 50 cases consisted in a removal of the breast and of the pectoral fascia and a dissection of the axilla. In the second 50 the "completed" operation was performed, both pectoral muscles being removed, the clavicular portion of the pectoralis major being left behind and the posterior cervical triangle frequently dissected. The results of operation in the two series of 50 cases show a slightly greater number of cures where the lesser operation has been performed. In the first 50 there were 14 cures and in the second 50 only 12. In the series of 100 cases there were 2 deaths from the operation, 1 from acute septic infection, due apparently to the fact that the patient was put in a bed previously occupied by a case of erysipelas, and the second case was one of pulmonary embolism caused by allowing the patient to sit up too soon and to move about too freely after operation. Speaking of cancerous infection during the operation, Warren says that it is his habit to act on the supposition that such danger exists, and throughout the operation to attempt to keep the parts exposed protected as much as possible by gauze packing. His modification of the Halsted operation has the advantage that nine-tenths of the wound is not exposed, nor, in fact, touched by an instrument until the close of the operation, presenting, therefore, much less danger of cancerous infection. In exploratory incisions instruments should be changed and the wound leading to the disease temporarily closed by suture or packed with gauze, so as to protect the operation wound as thoroughly as is possible.

40. **New Method of Closing Wounds of Large Arteries.**—Brewer records experiments undertaken with a view of obtaining some new and simple method of closing accidental wounds of the larger arteries. Experiments were carried out as follows: As soon as the artery is exposed it is brought to the surface of the wound and incised with the point of the scalpel. The vessel is then compressed above and below the wound to prevent excessive hemorrhage, and the sheath carefully removed. The artery is next cleansed of all blood by the use of a small pledget of gauze moistened with ether. As the ether evaporates the vessel wall is left clean and dry. A small strip of a specially prepared plaster sterilized by formaldehyd vapor is next passed beneath the vessel, and the two corners held by two small artery forceps. The strip is then put gently on the stretch and the lower extremity of the strip held by clamps placed firmly in contact with the vessel, while the upper extremity of the plaster is slowly drawn upward. This causes the vessel to rotate with the plaster until the horizontal edge of the lower extremity of the plaster is on a level with the vessel and firmly adherent to it. The two clamps are then passed over the vessel and the plaster kept on the stretch while the operator, with thumb and forefinger, gently rotates the vessel backward, and at the same time compresses the enveloping plaster until it adheres snugly. The redundant plaster is then removed and the vessel allowed to fall back to its normal position in the wound. The wound is closed without drainage and the gauze and collodion dressing applied. Brewer is of the opinion that, in dogs at least, small wounds of the larger arteries can be successfully treated by the application of an aseptic elastic plaster. This plaster should be exceedingly thin, very adhesive and applied with the minimum of pressure on the vessel wall; and that, if the operation is carried out with perfect aseptic technic, the plaster becomes embedded in the tissues and produces no outward symptoms. Brewer says he would not hesitate to use this method on the human subject if an occasion presented.

43. **Celiac Parotitis.**—Among many complications, says Dyball, which may be met with after operations on, or diseases of, the abdominal and pelvic viscera, one of the rarest is parotitis. To this form of parotitis Dyball proposes to give the name celiac parotitis. He concludes that it is most probable that celiac parotitis is due to the action on parotic glands of toxic substances absorbed into the blood and derived from (a) the secretions of certain organs modified by injury or disease; (b) toxins of microbic origin (*Bacillus coli communis*) absorbed either from the alimentary canal, peritoneal cavity or bladder; (c) products of deranged digestion. In any given case of injury or of disease of the abdominal or pelvic viscera, the occurrence or not, of parotitis will, therefore, depend on the presence and on the absorption in sufficient quantity of some of these various toxic agents. Suppuration does not appear to be an esential feature of the condition, but is due to the fact that the parotid gland, when inflamed by the action of these toxic agents, forms a *locus minoris resistentiæ* and becomes secondarily infected by pyogenic organisms reaching it (a) by the blood stream; (b) by Stenson's duct. Dyball suggests this theory as one which affords an explanation of all cases, and which is in accordance with present knowledge of the colony.

44. **Duodenal Ulcer.**—Mayo reports 59 operations in 58 cases; 7 for acute conditions developing with one exception, on chronic ulcer, with 3 deaths. Fifty-one operations for chronic conditions gave one death. He says that at the present time posterior gastroenterostomy appears to be the operation of choice in the chronic cases.

50. **Undescended Testicle.**—Odiorne and Simmons performed orchidopexy 7 times in children ranging in age from 5 to 13

years. In but two instances was a perfect result obtained, and this in the same patient, aged 13, who had double retention. Both testicles are normal in size, position, and probably in functionating power. Two other boys were operated on at the same age, 13, and in both the testicles have remained in the scrotum. Although they have retracted to a position high in the scrotum, they are not in contact with the pubic bone. Neither testicle is notably atrophied. One of the patients suffers some pain. One case, aged 11, has a poor result, the testicle being much atrophied and fixed firmly just outside the ring, where it is a constant source of pain, and would better be removed. Two children were 5 years old at operation. In one the testicle drew up into the canal, where it remains very small and undeveloped; in the other it retracted to the pubic region, where it has as yet given no trouble. The only really satisfactory results were in the 4 cases, aged 13. As a result of 11 operations performed on adults of from 16 to 42 years of age, 5 testicles have remained in the scrotum, 4 of them occupying a high position in it, while the remaining one is in almost perfect position and fully one-half normal size, yet is the seat of frequent inflammatory attacks due to injury. Three testicles retracted soon after operation into the canals, where they remained very much atrophied. One of them is the cause of much pain. Two have retracted to the pubic region, where they are the source of considerable annoyance, undoubtedly due to their position. One of these is atrophied. In every case in which the organ appeared normal at the time of operation there has been a subsequent diminution in size. In two cases, however, the atrophy is not very marked, the testicle being fully one-half normal size. In 2 cases symptoms were distinctly relieved, in 3 not relieved and in 2 others were aggravated. In no case has there been a recurrence of a complicating hernia.

Northwest Medicine, Seattle, Wash.

December.

52 *Chorea in Pregnancy. J. M. Semple, Spokane, Wash.
53 *Preliminary Report of Results Obtained with Extravisceral Ligature in Enteroenterostomy and in Gastroenterostomy. R. C. Coffey, Portland, Ore.
54 Heart Failure Due to Acute Indigestion. L. R. Markley, Bellingham, Wash.

52. **Chorea in Pregnancy.**—Semple says that the perils of chorea in pregnancy are so great that when the symptoms increase, in spite of medical and moral treatment, and the sleep is becoming disturbed, the only course left for the physician is to induce premature labor, which gives the patient the only chance of recovery.

53. **Extravisceral Ligature.**—After having performed an enteroenterostomy and a gastroenterostomy, Coffey suggests the picking up of the side of each intestine entering into the anastomosis and tying it with a strong silk or linen thread, including as much of the intestine as necessary to make a hole of the desired size. Then take a Lembert suture and sew the intestines together, surrounding the two portions of intestine entirely with the suture. This method is a modification of that of McGraw, and is the result of a suggestion made by Weir that an opening between two hollow viscera would be better and more permanent, if it could be made in the form of a hole, like that punched through leather in harness-making, than the simple slit made by the McGraw ligature.

Archives of Pediatrics, New York.

December.

55 *Recurrent Vomiting in Children. B. K. Rachford, Cincinnati.
56 *Pyloric Stenosis in Infancy. Report of Case; Gastroenterostomy; Recovery. Henry L. K. Shaw and Arthur W. Elting, Albany.
57 Bronchial Asthma in Infants and Children, with an Analysis of 43 Cases. L. E. LaFetra, New York.
58 Gonorrheal Pericarditis. F. Huber, New York.
59 *Case of Carbolic Acid Poisoning Simulating Acute Scarlatinal Nephritis. S. S. Adams, Washington, D. C.

55. **Recurrent Vomiting.**—Rachford's treatment of the prodromal stage is as follows: One-quarter of a grain of calomel and 5 grains bicarbonate of soda are given every half-hour until 2 grains of calomel are taken. If the stomach is not too irritable the calomel should be followed, in two or three hours, by a saline laxative, and four or five hours later by benzoate of soda in from 3 to 8 grain doses every two or three hours, dissolved in essence of pepsin and peppermint water. No food whatever should be given. Water may be allowed if the stomach will retain it. The curative treatment consists of the carrying out of proper hygienic measures and a carefully restricted and selected diet. Sources of reflex irritation should be sought for and, if possible, removed. In the medicinal treatment Rachford considers the wintergreen salicylate of soda and the benzoate of soda most valuable remedies, and describes them in the following combination:

R. Sodii salicylatis (gaultheria)	℥i	4
Sodii benzoatis	℥ii	8
Pepsin essence	f℥ii	60
Aquæ menth. pip.	f℥ii	60

M. S.: Teaspoonful after meals for a child 6 years of age.

In the more severe cases this prescription must be continued for months at a time and, after this, is to be given once a day for an indefinite period.

56. **Pyloric Stenosis in Infancy.**—Shaw and Elting attempt to show that pyloric stenosis in the infant is of much more frequent occurrence than is commonly supposed, and that medical treatment of these cases is both uncertain and unsatisfactory. They advise early surgical interference, before the strength and vitality of the patient have become seriously reduced, either pyloroplasty or anterior gastroenterostomy being the operations of choice.

59. **Carbolic Acid Poisoning Simulating Acute Scarlatinal Nephritis.**—Adams' case, a girl, aged 10 years, had a moderately severe attack of scarlet fever without any troublesome symptoms. It was impossible from beginning to end even to approximate the quantity of urine passed in any twenty-four hours, as the mother invariably had an excuse for not keeping it or not measuring it. At the time of the seventh visit the child complained of intense itching. The mother was instructed to bathe her twice daily with a teaspoonful of carbolic acid to the quart of water (1 to 256). The itching was allayed and there was neither tingling nor irritation of the skin from the carbolic acid. Thirteen days later the patient passed a fair quantity of dark urine which was found to contain carbolic acid. The eyes were only slightly puffed; otherwise the girl was in fine condition. Adams is satisfied that the nephritic symptoms which appeared were due to the irritation of the drug and not to the toxemic effect of the scarlatina. This opinion was confirmed by the speedy relief of the kidney irritation with the elimination of the carbolic acid.

The Medical Mirror, St. Louis.

November.

60 Tent Life for Invalids in Colorado. C. F. Gardiner, Colorado Springs.
61 In the Matter of Syphilis, Treatment of the Individual Is Scarcely Second in Importance to Treatment of the Disease. G. M. Phillips, St. Louis.
62 Definite Records of Physical Signs. C. E. Quimby, New York.
63 Some Remarks on External Urethrotomy. R. Harrison, London, England.
64 Granular Urethritis. D. F. Talley, Birmingham, Ala.
65 Examination of Urine. D. C. Summers, Elm Springs, Ark.

The Texas Medical News, Austin.

November.

66 Autotoxemia or Malaria. B. H. Brodnax, Brodnax, La.
67 Uncinaria Americana. W. P. Dunbar, Campbell, Texas.
68 The Immediate Repair of the Pelvic Floor and Perineum. E. B. Davis, Philadelphia.

The Journal of the Medical Society of New Jersey, Newark.

December.

69 The Treatment of Angiomata by Boiling Water. J. A. Wyeth, New York.
70 Some Abuses and Uses of Cardiac Stimulants. W. B. Stewart, Atlantic City.
71 Infection by the Bacillus Aerogenes Capsulatus. W. P. Eagleton, Newark, N. J.
72 Injuries of the Eye. T. R. Chambers, Jersey City.

The Kansas City Medical Index-Lancet, Kansas City.

December.

73 Infections of the Urinary Tract with the Common Colon Bacillus. R. McE. Schauffler, Kansas City.
74 Stricture Retention—Its Surgical Treatment. H. Hill, Kansas City.
75 Some Diseases of the Biliary Passages, with Report of Cases. W. F. George, Kansas City.

The Medical Herald, St. Joseph.

December.

76 An Address, University Medical College. F. B. Tiffany, Kansas City.
77 Is It Mental Trauma? S. G. Burnett, Kansas City.

Atlanta Journal-Record of Medicine, Atlanta.

December.

78 Lumbar Puncture, a Direct Method for the Treatment of Tetanus, with the Report of 9 Successful Cases so Treated. W. T. Bivings, Atlanta.
79 Compulsory Returns of All Cases of Pulmonary Tuberculosis the First Step Toward Public Measures of Prevention and Treatment. E. R. Corson, Savannah.
80 Acute Alcoholism. C. C. Stockard, Atlanta.
81 A Case of Calculus. W. L. Champion, Atlanta.

St. Paul Medical Journal.

December.

82 Occipital Meningocele, with a Report of a Case Operated On. A. E. Benjamin, Minneapolis.
83 Trauma-psoriasis. E. Klaveness, Brooklings, S. D.
84 Hey's Internal Derangement of the Knee-joint. John Knott, Dublin.
85 Symptoms and Diagnosis in Injuries to the Abdomen. George H. Norris, Clearwater, Minn.
86 Tuberculosis of the Kidney. John T. Rogers, St. Paul.

Southern Practitioner, Nashville.

December.

87 Hysteria. J. R. Buist, Nashville.
88 Diseases of Children's Teeth and Treatment. W. C. Gillespie, Nashville.
89 Hepatic Insufficiency. Hubert Richardson, Baltimore.

The Laryngoscope, St. Louis.

November.

90 Some Points in the Pathology of "Bone Cysts" in the Accessory Sinuses of the Nose. A. L. Turner, Edinburgh.
91 The Applied Anatomy of the Frontal Sinus. H. P. Mosher, Boston.
92 The Sphenoidal Sinus and Its Surgical Relationship. H. H. Curtis.
93 Fourteen Cases of Chronic Multiple Sinusitis (Maxillary Antrum, Ethmoid Cells and Sphenoid Sinus) Operated On by Way of the Maxillary Route. T. P. Berens, Chicago.
94 Orbital Infection from the Ethmoid Cells with Spontaneous Opening at Inner Angle of Orbit. C. E. Munger, Waterbury, Conn.
95 A Report of Four Cases of Sinusitis in Children Operated On. L. A. Coffin, New York.
96 Purulent Otitis Media Complicating Typhoid Fever. E. W. Day and Chevalier Jackson, Pittsburg.

Northwest Medicine, Seattle.

November.

97 Helps and Hindrances to Proper Pre-Natal Conditions. W. C. Hastings, Seattle, Wash.
98 Diagnosis of Diseases of the Skin. R. W. Schoenle, Seattle, Wash.

The Alabama Medical Journal, Birmingham.

November.

99 President's Address, Medical Society of State of Alabama. M. B. Cameron.
100 The Importance of Thorough Chest Examinations in Office Practice. J. D. Heacock.
101 The Ovary and Its Functions—A Study in Minute Anatomy. E. H. Sholl.
102 Major Operations Performed at St. Vincent's Hospital. E. M. Robinson.

Pacific Medical Journal, San Francisco.

November.

103 Neglected Opportunities by the Patent Medicine Man. E. H. Smith, San Francisco.

The Central States Medical Magazine, Anderson, Ind.

November.

104 Some Surgical Suggestions. M. A. Austin, Anderson, Ind.
105 Dust, Water and Milk as Sources of Infection. S. E. Earp, Indianapolis.
106 Case of Poisoning by Antiseptic Tablets. Leonard W. Brown, Indianapolis.

Fort Wayne Medical Journal-Magazine.

November.

107 Endocarditis as a Complication of the Acute Infectious Diseases. B. P. Weaver, Ft. Wayne.

The Providence Medical Journal.

November.

108 The Case of Injury to the Cervical Portion of the Spinal Cord, with Postmortem Examination. J. H. Morgan.
109 Injuries of the Eyeball, with the Report of Seven Cases. V. L. Raia.
110 The Results of the Improper Treatment of Some Eye Affections. G. W. Van Benschoten.

Archives of Electrology and Radiology, Chicago.

November.

111 Some Observations on the Medical Uses of the Continuous (Galvanic) Current. D. R. Brower, Chicago.
112 Three Cases of Inoperable and Recurrent Sarcoma Successfully Treated by the Roentgen Ray. G. C. Johnston, Pittsburg.

The Clinical Review, Chicago.

December.

113 A Cause of Acute Appendicitis and the Treatment of Acute General Suppurative Peritonitis Due to Rupture of the Appendix. A. H. Levings, Milwaukee, Wis.
114 Infantile Hemiplegia. L. H. Mettler, Chicago.
115 The Construction of Hospitals for the Treatment of Contagious Diseases. A. J. Ochsner, Chicago.

Journal of the Association of Military Surgeons of the United States, Carlisle, Pa.

December.

116 An Improved Method of Standardizing the Recruit. H. G. Beyer, U. S. A.
117 The United States Army General Hospital at the Presidio of San Francisco, Cal. A. C. Girard, U. S. A.
118 Gunshot Wounds of the Ureter—Two Cases of Uretero vesical Anastomosis. G. T. Vaughan, Washington, D. C.
119 Some Features of the Immediate Treatment and Transport of the Wounded in Naval Warfare. C. F. Stokes, U. S. A.
120 The Army Medical Service of Russia. F. Howard, London.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

December 10.

1 Seven Cases of Thoracoplasty for the Relief of Chronic Empyema. Hamilton A. Ballance, London.
2 Hydrocephalic Fetus Delivered by Spinal Tapping. J. W. Valentine, Edinburgh.
3 *Vomiting of Pregnancy. J. M. H. Martin.
4 Suggestion of a Cubic Centimeter Measure for Patient's Use. J. Theodore Cash.

December 17.

5 *The Indications for Operative Interference in Diseases of the Stomach. Robert Saundby.
6 The Diagnosis and Surgical Treatment of Certain Cases of Chronic Indigestion. Gilbert Barling.
7 *Duodenal Ulcer and Its Treatment. D'Arcy Power.
8 The Nature of the Malformations of the Rectum and Urogenital Passages. F. Wood-Jones.
9 The Germ Cell Theory of Cancer. Albert S. Grunbaum, London.

3. Vomiting of Pregnancy.—Martin offers the following classification of this condition, and in doing so cautions that there may be vomiting due to phthisis or gastric ulcer coincident with pregnancy. 1. Where the nausea or sickness is light, with, at the most, retching, occurring usually in the forenoon and passing away just before or when quickening takes place, without producing any constitutional disturbance. 2. Where vomiting as well as nausea is of frequent occurrence, not confined to any period of the day, and resulting in appreciable failure of health and emaciation. 3. Where vomiting is so constant and persistent that all food is rejected, rapid emaciation follows, with febrile disturbance, circulatory troubles, jaundice, dry tongue, quick pulse, delirium and threatened death. 4. Where organic disease is present, and it is difficult or impossible to say what share pregnancy has, in producing a dangerous or fatal result. An extended clinical experience leads Martin to say that there is simple nausea with or without actual emesis, of physiologic and of reflex origin, a symptom only due to hyperemia, the developing uterus, vessels and nerves in a confined cavity. That malposition of the uterus, if the cause of so many troubles in ordinary conditions of health, must be a graver trouble in the pregnant woman, and thus increases the vomiting of pregnancy and consequent malnutrition and emaciation. That in the absence of uterine troubles and organic disease hysteria plays an important rôle and usually defies all therapeutic remedies. If operation should be deemed necessary it should be carried out under thoroughly antiseptic conditions and anesthesia. Martin has found nepenthe by mouth and morphin by rectum most useful in the treatment of vomiting of pregnancy. The induction of abortion must be considered in those cases which come under the third and fourth divisions of his classification. The responsibility of such an operation should be a divided one, and the patient should have the benefit of it before it is too late, not waiting too long under the hope that vomiting may suddenly subside, as it sometimes does. Better attention to health and the greater inclination to athletic exercises and hygienic surroundings may have a tendency to counteract the artificial existence which has for so many years existed in the child-bearing population.

5. Indications for Operation in Stomach Disease.—Saundby urges the importance of the assistance to be derived from surgery in the treatment of stomach diseases, the need for seeking surgical aid before the patient's strength is undermined by the duration of the disease, and the value of simple means of diagnosis. Surgeons should reconsider the claim to operate in every chronic ailment of the stomach which has not been re-

lieved by medical means, to select their cases by studying the indications which justify operative interference, and to avoid, so far as possible, operating on patients who are the subjects of general neurasthenia.

7. **Treatment of Duodenal Ulcer.**—Power attempts to show that duodenal ulcers are not very uncommon; that usually they are single, and more frequent in men than in women. These ulcers may perforate and cause acute symptoms, or they may heal, and by cicatrization lead to symptoms of chronic duodenal obstruction. Power says the sequelæ of a healed ulcer may be so remote that the symptoms are mistaken for those due to cancer of the pylorus, and the patient is allowed to drift from bad to worse under the erroneous notion of the day that he is bound to die. In many cases there is no means of recognizing the existence of the ulcer until it perforates or until the results of its cicatrization become manifest. The treatment of duodenal ulceration laid down by Power is as follows: 1. Direct suture of a perforated ulcer, the prognosis being less favorable than in similar cases of perforation. 2. The performance of gastrojejunostomy in cases of dilated stomach due to duodenal constriction, the prognosis being the most favorable of all the conditions for which this operation is performed at the present time.

The Lancet, London.

December 10.

11 *Abdominal Pregnancy in Women, Cats, Dogs and Rabbits. J. Bland-Sutton.
12 Diseases of the Nervous System Sometimes Regarded as Functional, with Particular Reference to Diabetes. W. Howship Dickinson.
13 *Some Unusual Effects of Movable Kidney. C. Mansell Moullin.
14 Ankylostomiasis in Westphalia, Hungary, and Cornwall. Thomas Oliver.
15 Case of Extradural Abscess Complicating Acute Middle-ear Catarrh without Perforation of the Membrana Tympani; Operation; Recovery. R. G. Henderson.
16 Curious Case of General Tuberculosis in which a Complete Cast of the Stomach Was Vomited. Edward Swales.
17 Morbilli Sine Morbillis. J. D. Rolleston.

December 17.

18 The Operative Treatment of the Conditions of the Gastro-intestinal Tract which Result from Chronic Constipation. W. Arbuthnot Lane, London.
19 Benign Villous Tumor of the Renal Pelvis; Hematothorax; Nephrectomy; Recovery. H. Savory and W. Gifford Nash.
20 *Ethyl Chlorid as an Anesthetic in General Practice. Harvey Hilliard.
21 Case of Acute Lymphocythemia. Leonard S. Dudgeon.
22 Two Cases of Severe Cranial Injury. W. D. Chapman.
23 A Case of Congenital Hypertrophic Stenosis of the Pylorus in the Adult. A. Ernest Maylard, Glasgow.
24 Movable Kidney and Bilharzia Hematobia Affecting the Kidney. W. H. Clayton-Greene.
25 Case of Anencephalous Monster. H. Beattie.
26 *Appendicitis and Pregnancy: Notes of a Case with Operation and Recovery. H. A. Lediard and R. E. Sedgwick.

11. **Abdominal Pregnancy.**—In this paper Bland-Sutton brings forward facts in support of his contention that primary abdominal pregnancy is still an unverified speculation.

13. **Unusual Effects of Movable Kidney.**—In one case cited by Moullin a movable right kidney gave rise to a series of symptoms resembling very closely those ordinarily present in chronic gastric ulcer. The pain invariably came on from a quarter to half an hour after meals. Solid food made it worse, vomiting was frequent, and was rather encouraged as it relieved the pain. The stomach was not dilated or displaced. There was a little tenderness on deep pressure to the right of the epigastrium, but no tumor could be felt. Both kidneys were movable, the right one in particular, descending so far when the patient strained or coughed that it came quite below the thorax and the hands could be made to meet above it. In two other cases there had been repeated attacks of colic beginning in the right hypochondrium and resembling mild attacks of biliary colic, but bearing little or no relation to food. They rarely occurred at night. They were often attended by jaundice, which, however, rarely lasted longer than two or three days. There was tenderness in the right hypochondrium in both, especially after one of the attacks. The liver was not enlarged and no tumor could be felt when the patient was lying down. When standing up and leaning forward, supporting the weight of the upper part of the body on the hands, so that the abdominal muscles were relaxed, a sensation of deep resistance was felt over the region of the gall bladder, but the gall bladder could not be defined. The lower end of the right kidney could easily be felt in both patients when they were standing upright, but it was not movable in the ordinary sense of the term. In several other cases inflammation of the appendix was simulated very closely by movable kidney.

20. **Ethyl Chlorid Anesthesia.**—Hilliard describes the method of using ethyl chlorid, its dose, after-effects, clinical signs, and the preparation and posture of the patient. He considers this preparation an admirable anesthetic, either alone or with air, with nitrous oxid, with chloroform, with ether, with A. C. E. mixture, and as a preliminary to each of the last three for a large variety of surgical operations. It is contraindicated in diseases of the larynx, inflammatory lesions and tumors in, or adjacent to, the respiratory passages; goiter; all conditions giving rise to urgent dyspnea, and in long operations.

26. **Appendicitis and Pregnancy.**—The author's patient, aged 40, was seized with pains in the lower right half of the abdomen during the fifth month of pregnancy. Pain continued and was accompanied by constipation, but no vomiting. Poulticing relieved the pain for a few days, when it returned, accompanied by fever, constipation, swelling and tenderness in the right iliac fossa. She had had two similar attacks previously during pregnancy, and at about the same time. The diagnosis of suppurating appendicitis was made. An incision through the parietes in the usual place allowed the omentum to bulge forward into the wound. This omentum covered an abscess cavity containing about three ounces of pus. A gauze drain was inserted and the patient was put back to bed. Pregnancy was advancing and the movements of the child were both seen and felt, which did not tend to the formation of a good scar. Eventually, however, the wound closed. A month after the operation the patient miscarried, the child being dead. There were no complications, and the woman made an uneventful recovery. In view of the rapid growth of the uterus during the latter months of pregnancy, the author considered the advisability of procuring miscarriage. For some days after operation the wound seemed to get more and more extensive and gaping, and omentum was protruded. They felt that when the wound did heal several unpleasant possibilities might present during labor. The scar, recent and thin, might rupture; a large ventral hernia in all probability would form either during labor, with possible intestinal constriction as a result, or afterwards, in which case a second operation would be necessary for its cure. The risk of procuring miscarriage was thought to be sufficiently great to counterbalance what were, after all, only reasonable possibilities or probabilities, and nature finally and fortunately came to the rescue and solved all difficulties. Throughout her illness the patient had a singularly rapid radial pulse, and her temperature was almost uniformly subnormal and never rose above 99 except on three occasions.

Bulletin de l'Académie de Médecine, Paris.

Last indexed XLIII, page 1905.

27 (LXVIII, No. 38, November 22.) Japanese Mosquito Expeller.—Chasse-moustiques japonais. A. Laveran.

Presse Médicale, Paris.

28 (No. 93, November 19.) *Les français aux congres médicaux de St.-Louis. P. Courmont.
29 Pathologie. Experimentelle et comparée. H. Roger.
30 Les formes frustes de scorbut infantil. V. Hutinel.
31 (No. 94.) *Les variations de la virulence et la chirurgie urinaire. Guyon.
32 (No. 95.) *Sur la création à Paris d'une maison de santé pour le traitement des maladies contagieuses dans la classe aisée. J. L. Faure.
33 Fees for Medical Attendance in Industrial Accidents.—Les honoraires médicaux dans les accidents du travail. E. Forgue and E. Jeanbrau.
34 (No. 96.) *Les injections à froid de paraffine. M. Broeckaert.
35 *Des modes mécaniques de purification du lait (milk). P. Diffloth.
36 (No. 97.) Une epidémie de béribéri a Marseille. P. A. Lop.
37 *Anatomie et physiologie pathologiques du foie cardiaque (cardiac liver). E. Geraudel.
38 *L'etat "naissant" des substances médicamenteuses (nascent state). M. Frenkel.
39 *Les matériaux de l'urine. M. Labbé and H. Labbe.
40 Les deux indications de la trachéotomie dans la tuberculose laryngée. A. Lermoyez.
41 *Sur le traitement des affections de l'oreille et, en particulier, du vertige auriculaire par la rachicentèse. J. Babinski. Abstract.

28. **The French at the St. Louis Congress of Sciences.**—Out of the 130 presidents' and 260 official addresses at this international congress, 28 were representative Germans, 13 Englishmen and 15 Frenchmen. The Austrians numbered 8 and the Japanese 4, Italians 3 and Dutch 2, while six other countries sent one representative each, and the Americans numbered about 300. Courmont and Teissier are both of Lyons, France, and with these exceptions the other representatives from France were not officially connected with any medical faculty. Courmont compares this apathy on the part of the French with the systematic organization of an imposing representation invariably sent by Germany on such occasions. The French are not seen at these international gatherings, he remarks, and people forget that they are among the first, if not the first, in the medical sciences. Thirty years ago students flocked from America to Paris to complete their studies; now they go to Vienna, Leipsic or Berlin, and pass by France. One of the principal reasons for this is the excessive centralization of Paris. Foreigners do not know that there are a number of fine medical schools outside of Paris, one having 1,200 medical students. Invitations to participate in the congresses are sent to Paris only. If the invitations for Germany had been sent to Berlin alone there would not have been so many representatives at St. Louis. He concludes with the remark: "If our friends across the sea would remember that there are many universities in France they would have more visitors and more representatives of French medicine to respond to their invitations."

31. **Variations in Virulence and Urinary Surgery.**—Guyon comments on the comparative rarity of ammoniacal cystitis now; "retentionists" get along for years without local or general mishaps, notwithstanding their retention and the rich microbian flora in their bladders. The microbes are kept in a state of hypovirulence by the more frequent emptying of the bladder and its occasional disinfection with silver nitrate. The germs do not wax virulent under these measures, and as they are capable of attenuating the virulence of the germs, no surgical intervention should be attempted on the urinary passages until the virulence has been attenuated by these or by other measures. The operation, instead of being a very dangerous one in a field of hypervirulence, thus becomes a very benign intervention in a hypovirulent field. Prostatectomy, nephrectomy, lithotrity and suprapubic incision under these conditions, after attenuation of the virulence of the germs, do not expose the subject to operative shock, nor to exacerbation nor renewal of the febrile phenomena. The only operations which are best done without delay are those where it is necessary to open some septic focus from infiltration of urine or the like, merely a simple, rapid incision.

32. **Pay Hospital for Contagious Diseases.**—Faure suggests the advisability of establishing at Paris a well-equipped hospital for contagious diseases among the well-to-do. As each patient would have a separate room such a hospital would be expensive, and he adds that it might be better to have several small ones for each disease, measles, scarlet fever, diphtheria, etc.

34. **Syringe for Injecting Cold Paraffin.**—Broeckaert gives an illustration of his improved syringe which by the pressure of a screw forces out the cold paraffin in a soft, thin stream. Its advantages over other syringes of the kind are that only one hand is used. The screw is worked by an automatic lever which also serves as the handle for the syringe. By compressing together the two legs of this lever handle the screw is turned as rapidly as desired while the tip of the syringe is under complete control and the other hand is left free. He usually makes a pocket in the tissues with the tip of the needle to hold the paraffin before he injects it, and is enthusiastic in regard to paraffin prothesis as one of the finest acquisitions of modern surgery and, perhaps, one of the most fertile in its applications. He has sometimes obtained excellent results in the most discouraging cases by combining an autoplastic operation with the injection of paraffin.

35. **Mechanical Purification of Milk.**—Diffloth reports that great progress has been realized by the cotton filters, a Swedish invention, now used for purifying milk. The milk is strained through two wire strainers holding between them a flat, round, small sheet of cotton. The cotton is thrown away and replaced by a fresh disc of cotton after using. In eight months of tests with this cotton filter his inoculation of animals with the milk never caused morbidity, and the milk thus filtered could be kept for many days without souring. Diffloth regards the results of these tests as very remarkable in regard to the preservation of the chemical composition and of the digestibility of the milk, but as the milk was obtained from a model dairy they are not conclusive in respect to the microbes. Centrifugation has no effect on pathogenic germs in milk, or is liable to favor their proliferation. He adds that stock raisers have found it necessary to pasteurize "skim milk" from the creameries before feeding it to their pigs, as it is much harder to preserve than "skim milk" from natural cream rising. Centrifugation also interferes with what he calls the stereochemistry of the milk, that is the molecular arrangement of its constituents, and it has the further disadvantage that it expels the gases.

37. **"Cardiac Liver."**—Geraudel describes the pathologic anatomy of the congested liver in heart disease, commenting on the fragility of the liver in general and especially of the parenchyma surrounding the hepatic veins. The most remarkable feature of the "nutmeg" liver is the regional variation of the reaction of the organ to the injurious influences. The portal zone resists, but the zone around the hepatic veins rapidly yields. This imposes the necessity for guarding the subject with heart disease from any causes, alimentary, medicinal or of other origin, liable to reduce the resisting powers of the liver still farther, or to enhance the fragility of this zone around the hepatic veins.

38. **Nascent State of Medicinal Substances.**—Frenkel remarks in this continuation of his researches that each molecule of free oxygen contains two atoms, and the intraorganic oxidations occur only when the molecule has been split up into its atoms. Inside the body oxygen is split up into its atoms, which is the same as saying that it is in the nascent state. Ordinary oxygen in contact with the skin or taken into the stomach retains its molecular character and does not split up into atoms, but the peroxids do this. Hence their importance in therapeutics whether in the form of ozone (peroxid of oxygen), of peroxid of hydrogen, of magnesium or of zinc. These peroxids give up their oxygen, split into atoms, on contact with acids or ferments, and hence they allow, on the surface of the body, oxidations similar to the intraorganic vital processes.

39. **Materials of the Urine.**—Labbé presents arguments and data to corroborate the fact that the mineral substances in the urine owe their origin to the food. The proportion of chlorin, phosphorus and sulphur show the quantity and quality of the food taken. Exact knowledge of the diet and comparison of the ingesta with the excreta are indispensable for a proper study of the nutritive functions.

41. **Lumbar Puncture in Ear Affections.**—Babinski noticed that vertigo of aural origin was benefited by lumbar puncture. As the vertigo in such cases is due to irritation of the labyrinth, the idea occurred to him that the same measure might prove effectual in other affections of the labyrinth. He first established that rachicentesis does no harm from the standpoint of the ear. The occasional headache and nausea are transient and they are usually most pronounced in the subjects who derive most benefit from the intervention. He reports his experience with 106 cases thus treated. At first he allowed only 4 or 5 cm. of the cerebrospinal fluid to escape, but now he withdraws from 10 to 15. A single puncture is generally sufficient, but some patients require two or more. Out of 32 cases of vertigo, 21 of the patients were improved, including 7 who have been completely cured for six months at least. In 11 no benefit was apparent. The subjective symptoms were more rebellious. Out of 90 only 30 have found that the tin-

nitus was much improved. Deafness is still more rebellious, but occasionally cases were encountered in which the improvement seemed almost miraculous. In one case, a woman who had been deaf in one ear for six years subsequent to a suppuration, was able to hear the whispered voice at nearly seven feet. A man of 33 who had been a deaf mute from the age of two and a half, entirely deaf in one ear and almost completely deaf in the other, who had submitted to every imaginable form of treatment, was treated by puncture thrice repeated. No benefit was apparent after the first, but the second was followed by slight improvement, and now he hears the speaking voice at eight inches on the side in which the hearing had been supposed to be entirely lost. Pure labyrinthitis gives the larger proportion of successes, and in otitis media the phenomena due to irritation of the labyrinth are the ones most favorably influenced.

Berliner klinische Wochenschrift.

42 (XLI, No. 48, November 28.) *Carbonic Oxid Poisoning.—Untersuchungen zur Kohlenoxydvergiftung. F. Strassmann and A. Schulz.
43 *Differential Importance of Retrogressing Paralysis of Vocal Cords.—Zur diff.-diagn. Bedeutung der zurückgehenden Stimmbandlähmung. W. Berent.
44 *Beitrag zur Kenntniss der Infectionswege bei Lungentuberculose. M. Wassermann.
45 *Acute Articular Rheumatism in Children.—Der acute Gelenkrheumatismus der Kinder. A. Baginsky. (Commenced in No. 47.)
46 (No. 49, Senator number.) *Zur Diagnose und Therapie der cardiospastischen Speiseröhrenerweiterung (dilatation of esophagus). H. Strauss.
47 Ueber die chromophoren Zonen bei der vitalen Blutfärbung (blood staining). H. Rosin and E. Bibergeil.
48 Ueber familiäre Tabes dorsalis und ihre Bedeutung für die Aetiologie der Erkrankung. W. Croner.
49 *Roentgen Treatment of Blood Affections.—Zur Frage der Behandlung der Blutkrankheiten mit Röntgenstrahlen. R. Milchner and M. Mosse.
50 *Cure of Stricture by Mechanical Dilatation.—Heilung einer schweren Oesophagus-Narben-Strictur durch Sondenbehandlung. Wadsack.
51 *Metabolism During Convalescence from Inanition.—Ueber den Stoffwechsel im Rekonvaleszenzstadium nach chronischer Unterernährung. P. F. Richter.
52 *Ueber die experimentelle Erzeugung von Lymphocyten-Exudaten. A. Wolff and A. von Torday.
53 Zur Diagnostik der Nierentuberculose (of kidney). R. Milchner.
54 Senator in Forensic Medicine.—Senators Bedeutung für die gerichtliche Medicin. C. Strauch.
55 **Senator's Works on Functions and Pathology of Skin.—Senator's Arbeiten über Hautfunction, Hautkrankheiten und Syphilis. R. Ledermann.**

42. **Carbonic Oxid Poisoning.**—Strassmann and Schulz have been studying to learn if it is possible to distinguish between poisoning from without and poisoning from within by this agent, that is, whether it was inhaled during life or permeated the tissues after death. They experimented with illuminating gas, using the sensitive palladium chlorid test. The gas was introduced into the air-tight coffin holding the cadaver, and sometimes the tube was placed in the mouth. The results showed that there is no part of the body into which the carbon oxid does not penetrate in time, whether the gas is pure or diluted with air, stagnating or constantly renewed. A very important sign that the gas has penetrated from without is the difference in color of the hemoglobin in the muscles as they are nearer or farther from the surface of the body. There is no qualitative difference between the findings after carbonic oxid poisoning and of postmortem diffusion, but the quantitative difference is marked when the body has not been very long exposed to the gas. If completely saturated with it there may be no difference of any kind. In a recent case a woman was found dead with the tube of her gas stove in her mouth and the stopcock open. A relative asserted that criminal abortion had been forced on her and that the gas accessories were merely to divert suspicion. No traces of recent abortion could be discovered and tests for carbonic oxid in the blood aided in confirming the assumption of suicide.

43. **Retrogressing Paralysis of Vocal Cords.**—The postmortem findings in the case of fatal aneurism described and illustrated showed that the sac had become filled with coaguli during life. As they formed, the aneurism was not distended to quite the same extent as before, thus relieving the pressure which had induced the paralysis of the vocal cords.

44. **Routes of Infection for Tuberculosis.**—Wassermann believes that pulmonary tuberculosis frequently starts at some point in the lining of the mouth or throat or even in the ear. This lesion involves in turn the glands in the neck, the infection working downward and inward. The pleura is next involved and later the hitherto intact lung. This passage of the infection through the chain of organs to the intact lung and the tuberculization of the latter form a sequence which is frequently observed. He cites a few cases in illustration, among them that of a child with enlarged glands in the neck. The grandmother rubbed salve vigorously into the glands and the swelling subsided, but the bacteria forced out of the glands by the massage evidently passed into the pleura with resulting pleuritis, followed by infection of the lung. The assumption of this route for the infection needs to be confirmed by anatomic study of the lung apex *in situ*, not after it has been pulled out. If the findings were to indicate that the infection had been propagated from the parietal to the visceral pleura, then there could be no further doubt as to the correctness of this assumption.

45. **Acute Articular Rheumatism in Children.**—Baginsky has never found the blood essentially abnormal. The anemic appearance is probably due to the lessened blood pressure and the smaller amount of blood in the vessels. He protests against the dumping of chorea in the general receptacle for infectious affections—there are probably two main groups, the rheumatic and the nervous choreas. In 64 cases of chorea he found only 20 in which there were any rheumatic antecedents. Aside from chorea, nervous manifestations were rare in his experience with rheumatism except that cerebrospinal meningitis was sometimes associated. The distinguishing feature of acute articular rheumatism in children is the early and almost inevitable involvement of the heart. All except 7 of the 76 cases in his experience presented evidences of lively irritation or inflammation in the heart. In 17 cases there was apparently complete restitution of the heart, but in 41 others some cardiac defect developed sooner or later. The proportion of cases with intact heart was 12 per cent.; of complete recovery, 23 per cent.; of permanent heart defects, 62 per cent., and of deaths, 9.9 per cent. The postmortem findings demonstrated that the special and most prominent anatomic reaction of the heart in childhood to the irritation of the rheumatic virus is a fibrinous pericarditis with adhesions, and a tendency of the fibrinous exudated and proliferating products of the inflammation to become transformed into connective tissue, with the heart and pericardium completely grown together. The organism usually manages with this immovably fastened organ until the stress of puberty. Salicylic medication has no effect on the heart complications either for prevention or cure. He relates experiences with various drugs, including subcutaneous injection of carbolic acid, all to no avail. The only one that seemed to do any good was potassium iodid, from 1 to 3 gm. a day. This seemed to alleviate the symptoms of severe inflammation in cases of pronounced pericarditis and endocarditis. It sometimes had a magical action in reducing the fever, moderating the local inflammation and combating the most dangerous symptoms of the disease. His experience with antistreptococcus serum has been slight and rather unfavorable.

46. **Diagnosis and Treatment of Cardiospastic Dilatation of Esophagus.**—Strauss has modified his method previously described in these columns, and describes its mode of application and the results. One patient had presented symptoms of cardiospasm for ten years. The stomach tube introduced into the esophagus revealed evidences of stagnation. Pushing it farther down into the stomach evacuated food relics showing traces of digestion, entirely absent in the slimy mass removed from the esophagus. The sound with the inflated rubber bag afforded reliable information in regard to the size of the dilated esophagus. Its capacity was 350 c.c. in the typical case described. The sound projects into the stomach, and air blown through it can be recognized by auscultation. Pressure on the stomach region also disturbs the water in a connected jar. By this means it is possible to exclude a diverticulum, as in

case of the latter it would be impossible to push the sound down into the stomach without first withdrawing it a certain distance. The inflammation in the esophagus healed on removal of inciting causes, on resorting to rectal feeding and ingestion of oil, butter and minimal amounts of fluids, with tannin per os. Systematic stretching of the cardia was not undertaken until all symptoms of inflammation had subsided. The instruments used were all soft and flexible. One was a soft rubber tube with a hollow, spiral metal guide terminating 2 cm. from the tip of the tube. With this the esophagus was gently inflated as the tube was introduced, which has a tendency to open the cardia by the traction. When this appliance had been systematically used for a time he changed to one which has a spindle-shaped bag on the stomach tube. The air bulb is connected with this and the esophagus gently dilated. When the collapsed bag passes into the stomach its presence there can be determined by ascertaining that the tip of the tube projects into the stomach (auscultation of air blown in, etc.) The air bulb is then detached from the stomach tube and changed to a T tube. The rubber bag in the stomach is then inflated, the amount of air necessary to distend it to a circumference of about 9.5 cm. having been previously ascertained. Gentle traction on the stomach tube brings the inflated bag back through the cardia, accomplishing the dilatation. The air is then released and the apparatus withdrawn. Patients treated on these principles are soon relieved of all their disturbances, and in the typical case described the young man gained 28 pounds in six weeks. A woman with the esophagus dilated to a capacity of 550 c.c. was restored to health and gained materially in weight by a few weeks of systematic dilatation of the cardia in this way, although the capacity of the esophagus had not been much reduced. She has been free from disturbances during the year and a quarter since. The superior advantages of the appliances described are that the softness prevents injury of the lining, the pneumatic principle of inflating the esophagus renders it much easier for the bag to pass the cardia, and the larger circumference of the bag renders the dilatation more effectual, while a safety contrivance for the escape of the mercury prevents injury from too great pressure.

49. **Action of Roentgen Rays on Blood Affections.**—The experimental research on rabbits reported demonstrated that close exposure to *x*-rays causes the myeloid and lymphoid cells to vanish from the bone marrow while the red corpuscles remain unaffected. The findings confirm the clinical observation that pernicious anemia is not influenced by Roentgen treatment while leukemia is liable to show marked improvement owing to disappearance of the lymphoid and myeloid tissue. Red corpuscles suspended in salt solution and exposed for two hours to the rays were apparently unaffected by them.

50-51. **Mechanical Dilatation of Esophageal Stricture.**—An impermeable cicatricial stricture of the esophagus in a girl of 17 was dilated with a Crawcour spiral sound introduced for a quarter of an hour daily until fluids could be ingested. Further dilatation was accomplished with Senator's swelling sound, that is, a sound on which a laminaria tent is fastened. About fifteen minutes after its introduction the patient feels the pressure of the swelling tent in the stricture; when it becomes unbearable the sound is removed. The success of this mechanical dilatation was most striking. In six weeks the patient was eating normally and gained 66 pounds in seventy days. Richter's article reports the findings in regard to the metabolism during convalescence.

52. **Experimental Production of Lymphocyte Exudates.**—Wolff recalls that Senator in 1893 was the first to suggest the possibility of an active lymphocytosis. He proposed this as an explanation for the finding of lymphocytes in the urine in certain cases of nephritis. Wolff has been seeking some means of influencing the lymphocytes and of inducing active lymphocytosis by chemotactic or other means. He first undertook research to determine whether the lymphocyte reaction is of the same biologic importance in different species, and whether the agents found to induce lymphocytosis in one have the same action in other species. The results demonstrated that injection of tetanus and diphtheria toxin is able to induce exudation of lymphocytes, persisting for one to twenty-four hours after the injection. The mouse has a special tendency to lymphocytosis. The substances which induce polynucleosis in the guinea-pig cause lymphocytosis in the mouse. A peritoneal injection of .1 c.c. of one of these toxins produces active lymphocytosis at will. In the guinea-pig similar injections cause lymphocytosis at first, gradually changing to polynucleosis after the first hour.

Centralblatt f. Chirurgie, Leipsic.

Last indexed XLIII, page 1008.

56 (XXXI. No. 44, November 5.) Zur Technik der Röntgen-Therapie. A. Schönberg.
57 *Zur Radikal-Operation der Schenkelhernie (femoral hernia). A. Hammesfahr.
58 Typhus-Reaktion in Abszessinhalt und Blut nach 23 Jahren (after 23 years). Harbordt.
59 (No. 45.) Zur Witzel'schen Methode der hohen Rektum-Amputation. C. Hofmann.
60 Eine Modifikation bei der Oberschenkel-Amputation sec. Gritti. M. Silbermark.
61 Technic of Sawing an Arc.—Wie erleichtert man sich das Sägen im Bogen? C. Bayer.
62 (No. 46.) Meine zweite Methode der Magen-Resektion (of Stomach). L. Rydygier.
63 (No. 47.) *Gelenktuberkulose und Trauma (joint tuberculosis). N. N. Petrow (St. Petersburg).
64 Eine Kieferklammer (jaw clamp for narcosis). A. Hofmann.
65 (No. 48.) *Woody Phlegmon of Neck.—Zur Kenntnis der sogenannten "Holzphlegmone" ("Phlegmone ligneuse du cou" nach Reclus). H. Merkel.

57. **Radical Operation for Femoral Hernia.**—Hammesfahr closes the femoral canal by fastening Poupart's ligament to the crest of the horizontal ramus of the pubis. After the hernial sac has been resected and the stump reduced, he drills three holes in the upper margin of the ramus. They are drilled from the front and slant upward so that the inner opening is close beneath the edge of the crest. Strong silk is then passed around Poupart's ligament and then through the holes and tied firm. This fastens the ligament to the bone like the periosteum, and it probably becomes adherent. The ligament can be said to start at the crest of the pubis, toward the median line from the femoral vein. Aseptic healing can be counted on if silk, boiled and kept in Claudius' 1 per cent. iodin-iodid solution, is used and thread gloves worn.

63. **Joint Tuberculosis and Trauma.**—Petrow gives illustrations of the joints of animals after peritoneal inoculation of tubercle bacilli. The joints and epiphyses were clinically and macroscopically intact, but the microscope revealed tubercle bacilli latent in the marrow of the epiphyses in 14 out of 312 sections, the positive findings being from 8 animals which had succumbed to tubercular peritonitis four or five weeks after inoculation. Further experiments with infected joints exposed afterward to trauma demonstrated the unmistakable action of trauma in accelerating the progress of the infection. In another series of experiments he established that a severe trauma affecting a joint is liable to favor the localization at this point of chronic tuberculous infection.

65. **Woody Phlegmon of Neck.**—Merkel describes a typical case of Reclus' "phlegmone ligneuse" developing in the course of four months. The process evidently started in the tonsil and burrowed outward, spreading under the skin and inducing dyspnea and dysphagia, pain and slight temperature. An incision was made in the hard, woody tumor, under chloroform, and a tablespoonful of pus evacuated, after which the tumor rapidly softened and in two months not a trace was left. The patient connected the tumor with the fact that he had held a knife for a few moments in his mouth after he had just slaughtered with it a cow presenting lesions of actinomycosis. But nothing about the phlegmon suggested an actinomycotic process.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed XLIII, page 2054.

66 (XXVIII, No. 46, November 19.) *Remote Results of Incision of Portio and Vagina for Rapid Delivery.—Heilungsresultate nach vorderem Gebärmutter-Scheidenschnitt und deren Bedeutung für die Bewertung dieses Schnellentbindungsverfahrens. H. v. Bardeleben.
67 *Zur Hebotomie. G. Leopold (Dresden).
68 Ueber die Symphyseotomie. D. v. Velits.
69 *Meine Technik des Lateralschnittes (lateral section). L. Gigli (Florence).

70 Prolapse of Omentum.—Netzvorfall, in einer 8 Jahre post operationem geplatzten Kolliotomie-Narbe. Westphal.
71 Suture of Recent Lacerations.—Zur Naht frischer Scheiden-Damm-Risse. H. Rose.
72 Open Wire Model of Infantile Skull for Study of Diameters.—Gefenstertes Modell des kindlichen Schädels zur Darstellung der Durchmesser. G. Burckhard (Würzburg).
73 (No. 47.) Zur Frage der Opitz-schen Schwangerschaftsdrüsen (pregnancy glands). M. Schwab.
74 *Beitrag zur Symptomatologie der Retroflexio uteri mobilis. W. Nacke.
75 Foreign Body Stone in Bladder.—Entfernung eines von Blasensteinen umgebenen Gänsekieles aus der Harnblase. P. v. Kubinyi.
76 Doppelseitige Mastitis in der Gravidität im Anschluss an ein impetiginöses Ekzem der Brustwarzen. A. Calmann.
77 Zur Technik der Amputation des invertierten Uterus. E. Falk.
78 (No. 48.) *Gefährliche Blutung aus den Harnwegen während der Gravidität (hemorrhage from urine passages). P. v. Kubinyi.
79 Tod intra partum durch innere Verblutung infolge Ruptur eines Mesenterialgefässes (death from internal hemorrhage). Jacoby.
80 *Lokal Anästhesie mittels Eukain-Adrenalin. H. Freund.
81 Fall von Hernia abdominalis uteri gravidi. A. Rosner.

66. Ultimate Results of Anterior Utero-Vaginal Incisions.—Bardeleben reports 8 cases examined for the remote results of rapid dilatation by means of an incision through the portio and vagina. There was no hemorrhage, no discharge in any instance, nor retroflexion, and in only 1 was anteposition and in 2 retroversion with anteflexion noted. The advantage of the incision is that one can control the evacuation of the uterus in a given time, and the wound is in the best possible condition for repair. Instrumental dilatation is under less complete control, and in case of unyielding tissues there is danger of laceration, after which the prospects for repair are much less favorable.

67. Extramedian Symphyseotomy.—Leopold has performed the Gigli operation in 5 cases recently. It proved simple and easy of execution and the lying-in period was free from complications of any kind. He gives the details, the results confirming Gigli's assertions in every respect.

69. Gigli's Technic for Extramedian Symphyseotomy.—Gigli qualifies ordinary symphyseotomy—from the surgical standpoint—as not a proper operation. His technic of extramedian symphyseotomy, however, is free from all its disadvantages while securing all that is claimed for it. The incision must be to one side of the articulation of the symphysis, and it must also be outside of the point of attachment of the pubovesical ligament. The line that best respects the relations between the bladder and the pubis, etc., is drawn from the tuberculum below, slanting upward toward the median line above, lying entirely along the bone. This avoids the points where the abdominal wall is weak and leaves the cartilaginous apparatus intact. It is well to draw the skin down so that there will be as much space between the incision and the genitalia as possible. The soft parts are then incised down to the bone, and then mobilized a little at top to allow the finger to feel the upper margin of the pubis. A blunt-pointed, curved needle is then easily passed from above behind the bone in the direction of the incision, and, guided by the finger in the vagina, it emerges at the proper point below, entirely avoiding the crura clitoris. There are no large vessels at the back of the pubis, and the needle curves up readily around the lower margin of the pubis. The wire saw is then fastened in the needle, which is then drawn back, the bone sawed and the operation is done. Both the immediate results—the absence of complications—and the remote—the permanent enlargement of the pelvis with no interference with the gait—speak in favor of this operation first made possible by Gigli's wire saw. He insists that it should be called "Lateralschnitt des Beckens," which may be translated "lateral section of the pelvis." Others call the operation "hebotomy," from the Greek term for pubis. [For convenience in indexing, the term extramedian symphyseotomy seems preferable for the present.—ED.]

74. Symptomatology of Movable Retroflexion.—Nacke found that 14 per cent. of 265 patients with movable retroflexion and otherwise apparently normal genitalia had no symptoms whatever from the backward displacement. Of the others, 66 complained of backache alone, 37 of backache and other symptoms, and 125 of every possible symptom. The retroflexed uterus does not seem to cause disturbances so long as it is not enlarged and is free from pathologic changes. In case of congestion of the organ, increasing its size, or of irritation of its peritoneal investment from running, dancing, working the sewing machine, etc., the retroflexed uterus gives rise to pains which probably would not be the case if the organ were in anteflexion. The symptoms observed are probably due to slight changes in the tissues or in the nervous apparatus of this region from these causes.

78. Hemorrhage from Varices During Pregnancy.—Kubinyi has observed a case of complete retention of urine after sudden hemorrhage from the bladder at the eighth month of a pregnancy, the outlet of the bladder having become obstructed with a thick clot. The hemorrhage was traced to a varicose enlargement of one of the veins in the bladder. In another case an almost fatal hemorrhage occurred from a varix on the leg of a pregnant woman.

80. Eucain-Adrenalin Local Anesthesia.—Freund relates his experience with local anesthesia with a mixture of 2 parts of 1 per 1,000 adrenalin to 8 parts of a 1 per cent. solution of beta eucain, injected under the skin or mucosa or both. He regards it as indispensable for prolapse operations and for plastic operations on the perineum. No by-effects were ever observed in his extensive experience except that a few extra sensitive patients complained of transient smarting.

Dermatologische Zeitschrift, Berlin.

Last indexed XLII, page 1599.

82 (XI, No. 6, June.) *Ueber Pagets Disease. A. Jungmann and I. Pollitzer.
83 *Zur Radiotherapie. O. Lassar.
84 (No. 7.) Zur Kasuistik des Adenoma sebaceum. A. Buschke.
85 *Ueber Hg. Paraffin-Embolien. Voss.
86 Value of Alcohol Soaps in Dermatology.—Alkoholseifen. K. Gerson.
87 *Die Wasserbehandlung der Gonorrhoe und des Ulcus molle (water treatment). J. Sadger.
88 (No. 8.) Vasenol, eine neue Arzneimittelgrundlage für Salben, Pasten und Injektionsflussigkeiten (new vehicle). P. Thimm.
89 *Ueber eine Weiter-Impfung vom syphilitisch infizierten Schimpansen (further inoculation of ape). O. Lassar.
90 (No. 9.) Ueber einen interessanten Fall von Lepra mutilans. G. Demetriade.
91 Ueber ungewöhnlich lange Inkubations-Dauer der Gonorrhoe (unusually long incubation). M. Joseph.
92 Zur allgemeinen Pathologie der Syphilis und der sogen parasyphilitischen Erkrankungen. F. Lesser.
93 Ueber die Beziehungen des idrocystoms zur Granulosis rubra nasi. F. Pinkus.
94 Zur Histologie der Granulosis rubra nasi Jadassohn. E. Baumer.
95 Die Ursache der Alopecia praematura (cause). F. B. Solger.
96 Zur Vererbung der Syphilis (hereditary transmission). P. Misch.
97 *Improved Yellow Oxid Ointment.—Ueber die Verordnung und Zubereitung der gelben Salbe. F. Schanz.
98 (No. 10.) Zur Anatomie der Haut-Epitheliome. K. Kreibich.
99 *Kathoden Strahlem als Ersatz für Röntgen- und Radiumstrahlen (Cathode rays as substitutes). H. Strebel.
100 Report of Fifth International Congress of Dermatology, Berlin, Sept. 12-17, 1904.
101 (No. 11.) Ueber Finsen Behandlung. O. Lassar.
102 Demonstration von Paraffin-Prothesen bei Gesichts-Deformitäten und Gaumen-Defekten. H. Eckstein.

82. Cure of Paget's Disease.—In the case described, the affection known as Paget's disease of the nipple was located in the axilla. For this reason the authors suggest that the disease had better be called by a more descriptive name, and propose "chronic, circumscribed, eczemiform epithelial dermatosis." This term corresponds with the histologic findings which they describe in detail. The lesion was so extensive in the case reported, measuring 13 by 20 by 27 cm. in extent, and involving the upper arm and both the front and back of the chest, that the surgeons declared it inoperable, especially as the patient, a ix-para, was very cachectic. Excised scraps from the deeper part of the lesion showed the elements of a squamous-celled carcinoma, evidently originating in the epidermis. Roentgen treatment was applied, exposing the entire region in a single sitting to a radiation of 4 chromoradiometer units and the deeper parts to from 8 to 10 units. After two or three weeks a reaction of the first degree developed all over the lesion and as this subsided the lesion healed. In less than four months nothing was left of the cutaneous lesion but a few narrow strips, and in the depths of the affection exhibited progressive improvement. The general health improved, the patient has gained in weight, and the blood findings are nor-

mal. A further exposure of 3 to 4 units was made four months later, and again after a few weeks, one small strip in the axilla being treated with radium.

83. **Radium Therapy.**—Lassar gives illustrations of a number of patients with melanoma or cancroid cured by application of 1 mg. of radium bromid in a small capsule of lead foil on a sheet of mica. He thinks that his experience justifies him in proclaiming that neoplasms can be cured with radium in the hands of any physician. Although the first expense of redium is high, yet as its energy is inexhaustible, on the whole, it is cheaper than some other methods of treatment. All mishaps from its use can be confidently avoided by suspending the treatment at the slightest symptom of irritation, swelling, redness, pigmentation or tenderness. Medical oversight is imperative and the rather tedious exposures must not be left to subordinates. During the thousands of sittings in his institute no inconveniences of any kind were noted, and the results observed indicate that radium has a wide field of usefulness in dermatology. He is also enthusiastic in regard to the efficacy of Roentgen treatment of cancer. It frequently transforms an inoperable into an operable lesion, and is almost certain to cure the incipient recurrences of the growth. They are usually more superficial than the primary lesion. He cites a number of cases in detail, among them that of a woman of 50 who appeared nine months after radical extirpation of a mammary cancer. The growth had recurred in the form of numerous ulcerating nodules, the size of a pigeon's egg, scattered over the region from the axilla to the median line and down to the waist. His illustrations show that the nodules entirely retrogressed under the *x*-rays, and the patient has gained more than six pounds.

85. **Embolism from Mercury in Paraffin.**—Voss states that in a material of 1,373 persons treated with 13,671 injections of insoluble mercurial salts, suspended in paraffin, embolism occurred fifteen times. The proportion was one embolism to each 91 subjects. The salt generally used was Hg. salicylate in a .05 or .1 per cent. suspension in paraffin. The symptoms were invariably slight and transient, and embolism may be regarded as a harmless complication. The injections were always intramuscular.

87. **Hot-Water Treatment of Gonorrhea and Soft Chancre.**—Sadger reiterates that the application of heat reduces the length of treatment by one-half or more; it entirely prevents glandular enlargement; renders a bubo non-virulent, and insures its rapid healing after evacuation. It is not effectual before incision. The application of heat alone is better than to combine it with medication. Welander has thus treated more than 2,000 soft chancres, and the results were invariably most favorable. K. Ullmann's hydrothermoregulator is proving a simple and convenient mode for local and self-regulating application of heat in the form of hot water continuously circulating in an endless tube.

89. **Further Inoculation of Ape with Syphilis.**—From the illustrations given by Lassar it seems to be evident that he has succeeded in inoculating a second chimpanzee with syphilis, the virus being taken from the first chimpanzee previously reported. He thinks that these results offer a prospect for obtaining an effectual antisyphilis serum from chimpanzees in time.

97. **Prescribing of Yellow Oxid Salve.**—Schanz presents various arguments to show the defects in the current modes of prescribing and making yellow oxid salve. His improved formula is: Hydrarg. oxyd. flav. recent. pur. pultiform .1 to 1 gm.; aq. dest. and adip. lanæ anhydric., āā, 1 gm.; vasel. amer. alb. 10 gm.

99. **Cathode Rays as a Substitute for X and Radium Rays.**—Strebel announces that the cathode rays act like the radium rays, and may substitute the latter in radiotherapy. He further describes his mode of photo-cauterization and commends it as a valuable means of treatment of lupus, cancroid and similar affections. His experience has also been very gratifying with local applications of the ultraviolet rays in the urethra to induce hyperemia as a means of treating gonorrhea.

Münchener medicinische Wochenschrift.

103 (LI, No. 46, November 15.) Comparative Pathology of Animal and Plant Tissues.—Vergleichende Betrachtungen über die abnormalen Gewebe der Tiere und Pflanzen. E. Kuster.
104 *Beitrag zur Symptomatologie der Sympathikus-Lähmung (paralysis). A. Rosenfeld.
105 *Ueber die tonische Reaktion licht-starrer Pupillen (not reacting to light). L. Roemheld.
106 *Ueber postdiptherische Nephritis. A. Mayer.
107 Die neuropathische Prädisposition. J. Bernhart.
108 *Klimatische Einflüsse auf Asthmatiker. G. Avellis.
109 Embolie der Arteria mesenterica superior im Puerperium. H. Cramer.
110 Extrauteringravidität bei gleichzeitig bestehender Infrauteringravidität. G. Wiener.
111 Birth Statistics in Bavaria.—Die Fruchtbarkeit des bayerischen Volkes im vorigen Jahrhundert. Grassl.
112 (No. 47.) *System der Strahlungstherapie (radiotherapy). G. Holzknecht.
113 Zur Kenntnis der Blutfermente (blood ferments). A. Jolles.
114 To Secure Expansion of Lung.—Wie unterstützen wir einfach und zweckmässig die Wiederausdehnung der Lunge nach der durch Rippen-Resektion vorgenommenen Entleerung eines Pleura-Empyems. C. Hofmann.
115 Influence of Carlsbad Waters on Bile Secretion.—Choledochus-Verschluss durch primäre Anlagen (Gallenschlamm) — Cholagoge Wirkung des Karlsbader Thermalwassers. F. Fink.
116 *Relations Between Tonsillitis and Articular Rheumatism.—Ueber die Beziehungen zwischen Mandelerkrankungen und dem akuten Gelenkrheumatismus. Gürich.
117 Sprained Ankle Cause of Death.—Fussgelenkdistorsion als Todesursache. W. Fürstenheim.
118 Zur Kasuistik der Misbildungen (deformities). L. Hecht.
119 Ueber die Erzeugung intensiver Röntgen-Strahlen für therapeutische Zwecke. J. Rosenthal (Munich).
120 Ueber die paraportale Resorption bei Neugeborenen während der ersten Lebenstage (in the new born). Ganghofner.
121 Gregarinen oder Plasma-Zellen. R. Hoffmann.
122 *Ueber Obliteratio uteri totalis. F. Frank. (Commenced in No. 46.)
123 Die Seebäderreise des "Meteor" (floating sanitarium). M. Fürst (Hamburg).

104. **Symptoms of Paralysis of the Sympathetic.**—Rosenfeld describes a case of cancer of the esophagus causing paralysis of the right sympathetic and left recurrent laryngeal nerves. Besides the usual symptoms he mentions a remarkable hyperemia of the opposite side of the face, and the anidrosis and reaction of the pupil to pain, observed on the affected side.

105. **Tonic Reaction of Pupils Not Reacting to Light.**—Roemheld's patient presented evidences of old phthisis and exophthalmic goiter, no syphilis. The pupils were unsymmetrically dilated, without any reaction to light. During accommodation, convergence and closing of the lids, they contracted with great rapidity and completeness, and persisted in this condition for a long time, resuming their former condition very gradually. There were no other indications of a spinal affection. This phenomenon has been observed to date in congenital lues, multiple sclerosis, tabes, diabetes, alcoholism, migraine and paralysis. Its significance for diagnosis and prognosis is still undetermined.

106. **Postdiphtheritic Nephritis.**—Mayer has witnessed a couple of cases of acute nephritis commencing the second week of diphtheria. He thinks that postdiphtheritic nephritis is more common than supposed, but generally escapes notice. The urine should be examined long into convalescence to detect albuminuria.

108. **Climatic Influences on Asthma.**—Avellis relates a few instances from his experience to show the contradictory action of change of climate in cases of asthma. In one instance a child had been permanently relieved of the asthma by a trip to a certain place in the country. There was no recurence of the asthma, but a year later the child was taken to this same place and at once the asthma returned and persisted until after the return home. In another case a change of air always brought on asthma; in a third, a place where the patient had always been free from asthma brought it on as soon as she arrived there. A fourth patient with very severe, almost constant, asthma, was permanently relieved by a two-hour journey to a hill country and the same place always proved "asthma immune" in her case. Another asthmatic lived in Heidelberg and suffered much from asthma, but was always relieved when he climbed to the top of the high hill there. Some do best in high valleys, others on the plains, some even in the London fogs. Sea air seems to have an unfavorable influence except for children, whom it frequently benefits. Mountain air sometimes helps children,

while Avellis has not found it of any use for adults. There is no special immune climate for asthmatics. Each must perseveringly seek the individual climate best suited for his individual case. The best climate of all for the purpose is in some special sanatorium where therapeutic suggestion and medical guidance of the nervous system accomplish more than all the most famous health and scenery resorts.

112. **System of Radiation Therapy.**—G. Holzknecht is privat docent of radiology at Vienna. He thinks that all forms of radiotherapy can be classified and arranged in a system which renders their exact application much easier and more scientific. There are six kinds of radiation: 1, heat; 2, visible rays (*a*, red to green inclusive, and *b*, blue and violet); 3, ultra-violet (*a*, about 350; *b*, about 250, and *c*, below 185.5); 4, cathode rays; 5, Becquerel rays (alpha, beta and gamma), and 6, Roentgen rays. In a table are shown the 16 sources for these rays. Sunlight is the first, and it includes 1, 2 *b* and 3 *a*. The Finsen light includes 2 *b*, 3 and 1. Radioactive bodies include 5 and the Roentgen tubes 6. The list of 8 standpoints from which each form of radiation must be considered includes: 1, the physical properties; 2, their eventual transformation outside of the absorbing tissue elements (artificial transformation); 3, their diffusion in the tissue; 4, their eventual transformation in the absorbing tissue elements (natural transformation); 5, the kind of action exerted on the tissue, organ or body in general; 6, the susceptibility of the special kind of cell involved; 7, the kind and the extension of the reaction; 8, the practical applicability and the clinical results. He argues further to prove that the cathode, Becquerel and Roentgen rays are essentially generators of ultra-violet rays, or, to be more exact, are conveyors of ultra-violet rays. The essential difference between them lies in their greater or less ability to carry the ultra-violet rays deeper into the tissues.

116. **Relations Between Tonsillitis and Articular Rheumatism.**—During the last four years Güring has had occasion to treat 17 cases of acute articular rheumatism, and noted evidences of tonsillitis in all but 4, and in these there was a peritonsillar abscess. The special form of tonsillitis was always the chronic, desquamating, inflammation with the yellowish-white, bad smelling "tonsil plugs" which form in the follicles. This follicular tonsillitis is responsible for many cases of articular rheumatism, and this disease can be warded off or recurrences prevented by incising and cauterizing the follicles and eventually excising part or all of the tonsil. The virus of articular rheumatism finds its way into the tonsils and induces acute tonsillitis, which may or may not be specially noticed by the subject. The virus then lurks in the recesses, latent but still virulent. It induces, alone or with other agents, a chronic follicular angina with or without the formation of plugs. When an exacerbation of this follicular angina occurs the door is thrown wide for the invasion of the body by the rheumatism virus. The tonsil plugs ,being very infectious foreign bodies, are liable to help on the disease process, and at any time assist in the development of a recurrence.

122. **Complete Removal of the Endometrium.**—Frank commends the total removal of the lining of the uterus as a simpler, more certain and harmless procedure than total extirpation, accomplishing the same purpose in appropriate cases. It might as well be called "extraperitoneal removal of the uterus lining" or "excisio vaginalis mucosæ uteri," or "total endometrectomy without opening the peritoneum." He describes his experiences with this operation in a number of cases since he first advocated it in 1887. It has been condemned by some physicians, but he thinks that the results he is able to show fully establish its usefulness in non-malignant affections.

Wiener klinische Rundschau, Vienna.

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124 (XVIII, No. 40, October 1.) Forensic Differentiation of Blood.—Die Blutdifferenzierung vom gerichtlichen Standpunkte. S. Minovici.

125 New Views of Stuttering, etc.—Neuere Ansichten über Stottern, Stammeln, Poltern und Hörstummheit. (Commenced in No. 39.) J. Barth.

126 (No. 42.) Kasuistischer Beitrag zur Kenntnis einer "besondere insidiösen durch das Fehlen der Krampfanfälle charakterisierten Form des Status epilepticus" (Pick. A. Pilcz.

127 (No. 43.) Sacral Pain and Dysuria in Women.—Kreuzschmerz und Dysurie bei kranken Frauen. K. Pollitzer.

128 Zur Kasuistik der Claudication intermittente. R. Bernert. (Commenced in No. 41.)

129 (No. 44.) Anaesthesin bei chirurgischen Erkrankungen insbesondere der Speiseröhre (of esophagus). G. Lotheissen.

130 Airol als Diagnosticum bei kariösen Ohrenentzündungen (otitis). O. Kutvirt.

131 Beitrag zur Kenntnis der Hypoplasia uteri. E. Pollak. (Commenced in No. 43.)

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

ATLAS AND EPITOME OF GENERAL PATHOLOGIC HISTOLOGY. By Dr. H. Dürck of Munich. Edited, with additions, by Ludvig Hektoen, M.D., Professor of Pathology, Rush Medical College, in affiliation with the University of Chicago. With 172 colored figures on 77 lithographic plates, 36 text-cuts, many in colors. Cloth. Pp. 371. Price, $5.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

DIET IN HEALTH AND DISEASE. By Julius Friedenwald, M.D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Ruhräh, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Cloth. Pp. 689. $4.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

A MANUAL OF PERSONAL HYGIENE. Proper Living on a Physiologic Basis. By American Authors. Edited by Walter L. Pyle, A.M., M.D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. Second edition, revised and enlarged. Fully illustrated. Bound in silk. Pp. 441. Price, $1.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

GALLSTONES AND THEIR SURGICAL TREATMENT. By B. G. A. Moynihan, M.S. (Lond.), F.R.C.S., Senior Assistant Surgeon to Leeds General Infirmary, England.. Illustrated with text-cuts, some in colors, and nine colored insert plates. Cloth. Pp. 386. Price, $4.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

THE SURGERY OF THE DISEASES OF THE APPENDIX VERMIFORMIS AND THEIR COMPLICATIONS. By William Henry Battle, F.R.C.S., Surgeon to St. Thomas' Hospital and Edred M. Corner, M.B., B.C., F.R.C.S., Surgeon in Charge of Out-Patients to St. Thomas' Hospital. Cloth. Pp. 208. Price, $2.50 net. Chicago: W. T. Keener & Co. 1905.

NORMAL HISTOLOGY AND MICROSCOPICAL ANATOMY. By Jeremiah S. Ferguson, M.Sc., M.D., Instructor in Normal Histology, Cornell University Medical College, New York City. With 462 illustrations in the text, many in colors. Cloth. Pp. 738. Price, $5.00. New York and London: D. Appleton & Co. 1905.

DISEASES OF THE LIVER, GALL-BLADDER, AND BILE DUCTS. By H. D. Rolleston, A.M., M.D. (Cantab.), F.R.C.P., Physician to St. George's Hospital, London. Fully illustrated, including seven colored insert plates. Cloth. Pp. 794. Price, $6.00 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

MEDICAL ELECTRICITY: A Practical Handbook for Students and Practitioners. By H. Lewis Jones, M.A., M.D., Fellow of the Royal College of Physicians. Fourth Edition, with Illustrations. Cloth. Pp. 356. Price, $3.50. Philadelphia: P. Blakiston's Son & Co. 1904.

ANNUAL REPORT OF THE SURGEON GENERAL of the Public Health and Marine Hospital Service of the United States for the Fiscal Year, 1904. Paper. Pp. 675. Washington: The Government Printing Office. 1904

NEW PATENTS.

Patents recently granted that are of interest to physicians:

775520. Invalid bed. Julius W. Crigler, Bloomington, Ill.
775556. Microtomer. Carl F. Dieckmann, Buffalo, N. Y.
775841. Cap for air valves for surgical cushions or the like. Christian W. Meinecke, Jersey City, N. J.
775506. Artificial limb. Lawrence A. Weisser, National City, Cal.
775482. Back and head rest for invalids. Laura R. White, Ashland, Ky.
776062. Electromedical apparatus. Wm. Hirschhorn and F. Lowenstein, New York.
776402. Metallic package for syringe needles. Robert W. Johnson, New Brunswick, N. J.
776335. Vertebral stretcher. Solon M. Langworthy, Cedar Rapids, Iowa.
776087. Surgical bandage and material for making same. Rudolf Robitschek, Vienna, Austria-Hungary.
776908. Artificial limb. Samuel J. Henry, Princeton, Iowa.
776914. Truss pad. Alfred E. Johnson, Bloomington, Ill.
776519. Cabinet for specialists. Thomas W. Kelsey, Logansport, Ind.
776870. Support for sanitary cloths, garments, etc. Emanuel M. Silberman, Philadelphia, Pa.
777583. Sanitary attachment for telephone transmitters. Henry Baethig, Buffalo, N. Y.
777496. Induction apparatus. George M. Christopher, Chicago.
777182. Syringe nozzle. Harry M. Clark, Atlanta, Ga.
777406. Apparatus for making methyl chlorid. Maurice E. Douane, Paris, France.
777195. Douche commode. Sarah and M. Fischer, New York.
777503. X-ray tube. Robert Friedlander, Chicago.
777143. Massage appliance. Camillo Risola, Bournemouth, England.